

1 IN THE UNITED STATES COURT OF FEDERAL CLAIMS

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3
4 BLACKFEET TRIBE OF THE)
5 BLACKFEET INDIAN RESERVATION,)
6 Plaintiff,) Case No. 12-429L
7 vs.)
8 THE UNITED STATES OF AMERICA,)
9 Defendant.)

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11
12 U.S. Bankruptcy Court
13 Russell E. Smith Federal Building
14 201 East Broadway Street
15 Missoula, Montana
16 Tuesday, August 23, 2016
17 9:30 a.m.
18 Trial Volume 6
19

20
21 BEFORE: THE HONORABLE THOMAS C. WHEELER
22
23
24

25 Reported by: Rick Sanborn, CER, Digital Reporter

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1 ALSO PRESENT:

2 Tyson Running Wolf, Treacie Burback

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1			I N D E X		
2	WITNESS:	DIRECT	CROSS	REDIRECT	RECROSS
3	FINNEY		1263	1318	1340
4	DROESSLER	1350	1395	1401	1402
5	MONTGOMERY	1403	1446	1471	1478
6	WENTE	1484			
7					
8	EXHIBITS:		ID	RECVD	
9	PLAINTIFF				
10	140		1273	1275	
11					
12	DEFENDANT				
13	187			1334	
14	DEFENDANT				
15	DEMONSTRATIVE				
16	3		1350		
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1 P R O C E E D I N G S

2 - - - - -

3 (Proceedings called to order, 9:30 a.m.)

4 THE COURT: Good morning.

5 COUNSEL: Good morning, Your Honor.

6 THE COURT: Please be seated.

7 We're on the record for Trial Day Number 6 in the
8 case of the Blackfeet Tribe vs. The United States.

9 Good morning, Dr. Finney.

10 THE WITNESS: Good morning.

11 THE COURT: Do you understand that you're still
12 under oath in these proceedings?

13 THE WITNESS: Yes.

14 THE COURT: All right.

15 Let's go ahead, Mr. Graybill.

16 MR. GRAYBILL: Thank you, Your Honor.

17 Whereupon,

18 MARK FINNEY, Ph.D.

19 called as a witness, having been previously duly sworn, was
20 further examined and testified as follows:

21 CROSS EXAMINATION (Continued)

22 BY MR. GRAYBILL:

23 Q. Good morning, Dr. Finney.

24 A. Good morning.

25 Q. So, where we left yesterday, we were -- when we

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1 left yesterday, we were just about to start going through
2 your models, and they are identified as Case 1 through 6, I
3 believe, correct?

4 A. I think 0 through 6.

5 Q. Zero through 6.

6 A. Correct

7 Q. Okay. And each case represents a model fire; is
8 that correct?

9 A. Each case represents a simulated fire, all based on
10 variations of Case Zero.

11 Q. Okay. I want to start with Case 1, and I just want
12 to reiterate that with regard to Case 1, and this is at your
13 report. It's 94-12, and it's page 11 of your report.
14 There's a description of it there. And I want to reiterate
15 something that I think we touched on yesterday, and that is
16 that with regard to Case 1 through 6, you used Mr. Schulte's
17 data and modifications that you decided were necessary. Is
18 that correct, what we talked about yesterday?

19 A. Yes, what Case 1 represents is modifications to the
20 starting configuration for the Black Eagle -- or the Red
21 Eagle Fire, but using Mr. Schulte's data, his spatial data
22 and his weather data in this case.

23 Q. His spatial data and his weather data. But you
24 made modifications to Case 1 that we talked about yesterday
25 that are described on page 10 and 11 of your report, correct?

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1 A. Yes, that's right.

2 Q. Okay. And those modifications that you made
3 regarding start date and 1 percent spotting and crown fire,
4 those are included in all of your Cases 1 through 6, correct?

5 A. Yes, they should be identical.

6 Q. Okay. So, going to Case 1, this is a proposed fuel
7 treatment that -- this was Mr. Schulte's proposed fuel
8 treatment, where all of the land cover was converted to an FM
9 10 to an FM 8, correct?

10 A. All of the land covered was converted to an 8, yes,
11 irrespective of what it started at.

12 Q. To a Fuel Model 8, correct?

13 A. That's right.

14 Q. All right. And that's what Mr. Schulte called for
15 in his report, correct?

16 A. That was the nature of the landscape file. As
17 we've discussed, Mr. Schulte stated it was a conversion of
18 Fuel Model 10 to an 8, but in this case, it's all cover types
19 to an 8.

20 Q. But there isn't any difference, is there, what
21 you're doing here with Case 1, other than the modifications
22 that you made from Mr. Schulte's modeling where he converts
23 from a Fuel Model 10 to a Fuel Model 8.

24 A. He converts Fuel Model 10 to an 8, but he also
25 converts 1 to an 8 and 5 to an 8 and rock to an 8 and other

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1 things. So, yes, all of his changes are in this particular
2 example. That's correct.

3 Q. Yeah, you're doing the same thing he did here.

4 A. Yes.

5 Q. That's all I'm trying to get at.

6 A. Yeah.

7 Q. Okay. And, so, isn't it true, then, that the
8 result of your Case 1 is -- and this is -- we can go to page
9 13 of your report. It's 94-14. There's a description of the
10 results of Case 1 on this page, correct?

11 A. Yes.

12 Q. And the result is that there was a dramatic slowing
13 of the fire progress as a consequence of the fuel treatment;
14 isn't that correct?

15 A. Yes.

16 Q. Okay. And, in fact, it's the purpose of fuel
17 treatments to do just this, to dramatically slow a fire in
18 order to allow suppression forces to try to control it, if
19 possible.

20 A. If possible.

21 Q. And isn't it true that the flame lengths where this
22 conversion from FM 10 to FM 8 occurred were two feet?

23 A. Yes.

24 Q. And you report that in your report, correct?

25 A. Yes.

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1 Q. All right. So, with regard to Case 1, this is
2 essentially a confirmation that Mr. Schulte's fuel treatments
3 work, assuming that you are able to convert FM 10 forest to
4 an FM 8 forest, correct? And we'll get into your other cases
5 here in a second.

6 a. Well --

7 A. Assuming that that's what you're doing, converting
8 FM 10 forest to FM 8, they work, correct?

9 A. Well, to be more clear, what this case, Case 1 in
10 my report, shows is if you make the same assumptions, all of
11 which include conversion of everything in that proposed fuel
12 break to a Fuel Model 8, then you get results that are
13 similar to Mr. Schulte's. That's what this says, not just
14 converting 10 to an 8.

15 Q. And to be clear, those results show two-foot flame
16 lengths and a dramatic slowing of the fire, correct?

17 A. Yes.

18 Q. And those results would allow suppression forces to
19 potentially control the fire.

20 A. If they were there, potentially.

21 Q. So, let's move to Case 3. We're going to come back
22 to Case 2, but let's move to Cases 3 through 6. And Case 3
23 is again described on page 11 of your report, 94-12. And,
24 so, Case 3, as I understand it, is a simulation that you did
25 where you converted the FM 10 areas of the proposed treatment

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1 to FM 8, but you did not convert the other cover types, which
2 included FM 1 grass, FM 5 and 6 brush, and FM 12 slash,
3 correct?

4 A. That's correct.

5 Q. And these are cover types that you contend are in
6 the treatment areas that Mr. Schulte has proposed?

7 A. They are in there.

8 Q. Okay. And, so, this approach was then repeated
9 in Cases 4, 5, and 6, correct? In other words, you left
10 those -- or you made sure that those fuel models -- 1, 5, 6,
11 and 12 -- were not converted to FM 8.

12 A. Yes.

13 Q. Okay. And that's what it means, for example, in
14 Case 4, where you say same as Case 3. Do you see that?

15 A. Yes.

16 Q. Okay. Because yesterday it was my understanding
17 you were saying that Case 4 was another FM 10 to an FM 8,
18 but, in fact, it does not convert these other fuels, correct
19 -- these other fuel types?

20 A. Yes, I think that's correct.

21 Q. All right.

22 A. So, when you left these other fuel types, the
23 grass, the brush, and the slash, you didn't treat them in
24 your model, did you?

25 A. No.

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1 Q. And, so, if you don't treat these other cover
2 types, they do, in fact, become corridors for fire spread
3 through the treated areas. Isn't that right?

4 A. Yes.

5 Q. And wouldn't you agree that any prudent forest
6 manager who was undertaking a fuel treatment reduction
7 project to reduce or convert Fuel Model 10 forest to a Fuel
8 Model 8 forest would, if he or she encountered other cover
9 types like slash or brush or grass, treat those as well?

10 A. Well, the purpose of my report, as it says, is to
11 simply evaluate what Mr. Schulte said he was doing exactly.

12 Q. So, let me stop you.

13 A. So, that's what -- that's what I did.

14 Q. Let me interrupt and just say that's not my
15 question. My question is different than that. Wouldn't you
16 agree that any prudent forest manager who is converting from
17 an FM 10 to an FM 8 who encounters other cover types that
18 could cause a risk of fire spread would, in fact, treat those
19 other cover types?

20 A. Well, to be clear, I don't think a prudent forest
21 manager would be converting a Fuel Model 10 to an 8 in this
22 case to begin with, so I'd question their prudence to begin
23 with. And -- but if you're doing a blanket treatment across
24 this -- this swath proposed for fuel treatment using the
25 techniques of prescribed fire, et cetera, then it would have

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1 some impact on these other types. Exactly how they would be
2 converted and what they would be converted to depends on the
3 local site characteristics.

4 Q. Okay. I'm going to try my question again, because
5 it's a little more -- it's a little simpler than that. If
6 you're a fuels manager or a forest manager and you're engaged
7 in a fuels reduction project, you're going to treat all the
8 hazardous fuels in the area, not just some; isn't that true.

9 A. If you can.

10 Q. Now, isn't it true that what Mr. Schulte recommends
11 is that the fuel break or fuel treatment be designed so that
12 the existing fuels would be modified to mimic the fire
13 behavior characteristics of a Fuel Model 8. Isn't that what
14 he says?

15 A. That's his intent in his modeling, that's right.

16 Q. Okay. And, so, that means what he's intending is
17 to treat all fuels in order to generate a slow-burning, low-
18 intensity fire.

19 A. Well, he only says Fuel Model 10 to an 8, so we
20 have to take him at his word. That's what it says.

21 Q. Let's go to Plaintiff's Exhibit 87-16. I think you
22 should have it there.

23 A. 88 -- 87-16.

24 Q. Do you have it there?

25 A. Yeah.

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1 Q. All right. And below Figure 9 -- in the paragraph
2 below Figure 9, the third line down, it says, "This fuel
3 break should be designed so that the existing fuels." Do you
4 -- I'm going to wait until you --

5 A. Yeah, just wait until I catch up.

6 Q. Yep.

7 A. This -- oh, yeah, there it is.

8 Q. "This fuel break should be designed so that the
9 existing fuels would be modified to mimic the fire behavior
10 characteristics of a fuel model 8." Do you see that?

11 A. I see that.

12 Q. It doesn't say Fuel Model 10 to Fuel Model 8 there.
13 It says that the existing fuels would be modified to mimic a
14 Fuel Model 8, correct?

15 A. That's right.

16 Q. Okay.

17 A. And the next sentence clarifies that it would be
18 achieved by thinning from below, selective cutting of the
19 timbered resource with resulting slash fuels. Well, if there
20 isn't a timber there, then thinning from below doesn't make
21 sense; and if it's grass, then you can't thin from below.
22 So, this is the point.

23 Q. Well, we're going to talk about what fuels are in
24 these areas in just a minute.

25 A. Okay.

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1 Q. Okay, so, you agree with me that you must treat all
2 surface fuels in the treatment area in order to change fire
3 behavior; isn't that right?

4 A. If you can.

5 Q. Okay. It would be an egregious error not to treat
6 all surface fuels if it's possible to do so, correct?

7 A. True.

8 (Plaintiff Exhibit Number 140 was marked for
9 identification.)

10 BY MR. GRAYBILL:

11 Q. Okay. So, you should have there the bear-clip on
12 it a document that's been marked as Plaintiff's Exhibit 140.
13 This is not in evidence. This is for identification purposes
14 at this point. Do you see that document, sir?

15 A. I'm sorry, where are we looking now?

16 Q. I'm sorry, this is Plaintiff Exhibit 140. It would
17 be Impeachment 140.

18 A. Oh, one -- okay, okay.

19 Q. And it's --

20 A. It's in this packet. Yeah. Yes.

21 Q. Do you recognize this article?

22 A. Yes.

23 Q. Okay, this is an article you wrote?

24 A. That's right.

25 Q. It's called computational method for optimizing

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1 fuel treatment locations?

2 A. Right.

3 Q. Okay. And if you would turn to page 109 of the
4 article, it's Plaintiff's 140-3.

5 A. There.

6 Q. In the paragraph there below the Figure 1, second
7 line, it says, "Managing the condition of the landscape and
8 the spatial fuel structure, therefore, offers the only
9 possible means to resist the growth of fires under such
10 conditions, reducing the spread rate and ultimate size of the
11 fires." Do you see that?

12 A. Yes.

13 MR. BAIR: Objection, Your Honor. As Mr. Graybill
14 noted, this document has not been admitted into evidence, and
15 we would object to its admission.

16 MR. GRAYBILL: Now that it's been identified, Your
17 Honor, we'll move for its admission into evidence.

18 THE COURT: Okay. Any objection?

19 MR. BAIR: We do, Your Honor. As with this other
20 academic article yesterday, the Plaintiff could have
21 disclosed this at any time over the many months since Dr.
22 Finney submitted his reports. Instead, they chose to just
23 disclose it today, and we're prejudiced by not having a
24 chance to review it, Your Honor.

25 THE COURT: Well, I'm going to overrule the

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1 objection. I think in accordance with the pretrial order,
2 it's permissible to use documents like this during cross
3 examination.

4 MR. BAIR: Thank you, Your Honor.

5 (Plaintiff Exhibit Number 140 was admitted into
6 evidence.)

7 BY MR. GRAYBILL:

8 Q. And then the last line of that paragraph says,
9 "Fuel is the only element of fire behavior that is
10 manageable, since weather and topography are beyond human
11 control." You agree with that, sir?

12 A. Of course.

13 Q. Yes. And if you turn the page to -- this is 140-4.
14 It's page 110 of the article. At the bottom of the page, a
15 little more than halfway down, there's a sentence that
16 begins, "Although any prescription can be applied, field
17 evidence consistently suggests that fuel treatment
18 prescriptions achieve reductions in wildfire spread rate and
19 intensity by removing surface fuels through prescribed
20 burning and decreasing the continuity between surface and
21 canopy fuel strata through low thinning." Do you see that?

22 A. Yes.

23 Q. And do you still agree with that statement?

24 A. Yes.

25 Q. And then it goes on to say, "Mechanical treatments

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1 that leave slash or don't remove preexisting surface fuels
2 may not change fire behavior sufficiently or even exacerbate
3 fuel hazards. Lands excluded from treatment consideration
4 retain the identical fuel descriptions in both landscapes or
5 involve prescriptions that increase the fire rate -- spread
6 rate." Do you see that?

7 A. Yes.

8 Q. And do you still agree with that?

9 A. Let's just be clear that sentence begins with
10 "Lands excluded." That's describing two separate landscapes
11 that are used in this computational method that I'm
12 describing in the paper.

13 Q. Do you agree that if you don't treat all of the
14 fuels fire behavior may not be sufficiently changed to allow
15 suppression.

16 A. Oh, I agree.

17 Q. Now, we're going to get into the fuels that were in
18 these treatment areas, but one of the fuels that you suggest
19 was there was a slash model. I think that was the FM 12; is
20 that right?

21 A. Or 11. I'm not sure. Is it 12?

22 Q. Well, in your report it's 12.

23 A. Okay, then that's right.

24 Q. Okay. That's slash from harvesting or thinning
25 projects?

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- 1 A. Right.
- 2 Q. That can be removed, can't it?
- 3 A. Yes, absolutely.
- 4 Q. And then I think you indicated that there was an FM
- 5 5 and 6, which are two different brush models, correct?
- 6 A. That's right.
- 7 Q. FM 6 is a more combustible model that burns more
- 8 intensely; is that right?
- 9 A. Yes.
- 10 Q. Okay. Brush can be treated and removed from a
- 11 landscape, isn't that true?
- 12 A. Temporarily, until it sprouts back, yes.
- 13 Q. Well, it can be removed over and over again from a
- 14 landscape; isn't that right?
- 15 A. Yes.
- 16 Q. And grass is also something that can be treated to
- 17 reduce fire spread; isn't that right?
- 18 A. Temporarily.
- 19 Q. It can be treated over and over again to reduce
- 20 fire spread; isn't that right?
- 21 A. Yes.
- 22 Q. Okay, now, I understand that you claim that these
- 23 fuel models are in the treatment areas, but what I'd like to
- 24 do is go to the Red Eagle Fire Final Narrative. It's
- 25 Plaintiff's Exhibit 57. You should have it in your binder

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1 there.

2 You see the first page is the Red Eagle Fire Final
3 Narrative?

4 A. Yes.

5 Q. And you turn to -- it's page 24 of the Final
6 Narrative. It's Plaintiff's Exhibit 57-25.

7 A. Yes.

8 Q. And there is a section there called Fuels. Do you
9 see that?

10 A. Yes.

11 Q. First paragraph, it says, "fuel model 1 best
12 represents the taller grass component found within the aspen
13 inclusions, predominantly on the east side of the fire." Do
14 you see that?

15 A. Yes.

16 Q. So, the final fire narrative is written by the
17 people who actually fought the fire, correct?

18 A. Correct.

19 Q. And they're the people who were on the ground and
20 who witnessed what the conditions were, correct?

21 A. Yes.

22 Q. And, so, they are saying here in the Final
23 Narrative that, in fact, Fuel Model 1, which you say is in
24 the treatment areas, is predominantly on the east side of the
25 fire. So, if it's on the east side of the fire, that's not

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1 in the treatment areas, correct?

2 A. That's correct, but if you look in the polygon
3 designated by Mr. Schulte, there is Fuel Model 1 within that
4 polygon in his fuel model map. And that's what I'm referring
5 to.

6 Q. Okay. And, so, the fact that you and/or Mr.
7 Schulte have a Fuel Model 1 in your fuel models is because
8 the GIS vegetation layer says that there's Fuel Model 1 in
9 the treatment area; is that right?

10 A. Yes, and it's in the landscape file that Mr.
11 Schulte chose to use for his simulations.

12 Q. Okay. But it would come from a GIS -- a GIS file;
13 isn't that right?

14 A. In this case, it came from the LANDFIRE data, which
15 are based on satellite imagery and then put into a GIS to
16 manage those data sets, yes.

17 Q. And I think that when you were answering some
18 questions by Mr. Bair you indicated that GIS data can -- is
19 notoriously error-prone in the sense that it could be old or
20 things could have changed from the time that the aerial
21 photography was interpreted. Do you remember saying that?

22 A. Oh, yes.

23 Q. Okay. And, so, in any event, according to the
24 people who were on the ground, the grass model is on the east
25 side of the fire, correct?

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1 A. There is grass there, but that's also in Mr.
2 Schulte's polygon.

3 Q. Okay. But I'm just talking about what the people
4 who were there are saying. They're saying that Fuel Model 1
5 is in the east side of the fire, which wouldn't be in the
6 treatments areas, correct?

7 A. There is that there and there's elsewhere, too.

8 Q. Predominantly, grass was on the east side; isn't
9 that right?

10 A. I don't know.

11 Q. Okay. And let me ask you this, did you review this
12 final fire narrative to do any of your modeling?

13 A. I looked at just a few sections of it.

14 Q. Did you look at this section?

15 A. No.

16 Q. All right. Let's move on, then, to Fuel Model 6,
17 which you say is a brush model that was in the treatment
18 areas proposed by Mr. Schulte.

19 A. Yes.

20 Q. Okay. Fuel Model 6 is not mentioned by -- in the
21 final fire narrative, by the people who were actually there.
22 They don't report that there was any Fuel Model 6. Isn't
23 that right? You can take a minute and look at it.

24 A. It doesn't appear to be here.

25 Q. Okay. So, Fuel Model 6 wasn't there in the

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1 treatment areas?

2 A. How would you know after it burned?

3 Q. Well --

4 A. They were only there after it burned. This
5 narrative was written after the fire spread through the
6 proposed treatment area. They were -- even being on the
7 ground wouldn't have been able to identify preexisting fuel
8 models. They would have to look at GIS data in order to
9 determine that.

10 Q. Well, sir, why is there a fuel section, if you
11 know, in the final fire narrative describing the fuels that
12 were present in the fire?

13 A. I don't know. I didn't write the report.

14 Q. Do you see there at the top it says a variety of
15 fuels were represented across the fire area?

16 A. Yes.

17 Q. Okay. Fuel Model 6 is not included in this
18 description of what was in the fire, correct?

19 A. Correct.

20 Q. All right. That's also true with regard to the
21 Fuel Model 12 that you have in your modeling. It's not
22 represented here either, is it?

23 A. That's right.

24 Q. Okay. Fuel Model 5 is identified here. Do you see
25 that?

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1 A. I do.

2 Q. And it says, "A Fuel Model 5 represents the brush
3 component (willow, alder" -- you can pronounce that next word
4 for me.

5 A. Ceanothus.

6 Q. "Ceanothus) found with the plantations along the
7 creek bottoms. These species typically retain their live
8 fuel moistures longer than other brush species, this change
9 in fuel composition and moisture content helped minimize fire
10 spread." Do you see that?

11 A. I do.

12 Q. So, the people who are fighting the fire in
13 remarking on the Fuel Model 5 brush type that was in the fire
14 actually indicated or indicate here that it minimized spread.
15 Correct?

16 A. That's what they say.

17 Q. So, if the fuel models that are -- excuse me -- the
18 cover types, the grass and the shrub and the slash cover
19 types that are in your models and were untreated in your
20 models are, in fact, not present in the fuel areas -- the
21 proposed fuel treatment areas that Mr. Schulte is proposing,
22 then they wouldn't provide these corridors for fire that
23 could diminish the effectiveness of those proposed treatment
24 areas. Isn't that right?

25 A. Are you talking hypothetically? I mean, I can show

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1 you in the landscape file data within the proposed treatment
2 area, those fuel models exist in that map. And that map was
3 chosen by Mr. Schulte. I'm just simply stating what's in the
4 legend of the map.

5 Q. Well, they may have been chosen by Mr. Schulte, but
6 I'm actually not talking in hypotheticals. I'm talking about
7 reality. The reality appears to be, doesn't it, sir, that
8 the people on the ground are reporting that these fuel models
9 that you have modeled and have not treated in your models,
10 actually weren't present in the treatment areas. Isn't that
11 true?

12 A. I don't know what exactly -- where the source of
13 information is, and that's what they're saying in there,
14 but --

15 Q. Well --

16 A. -- that's not what the GIS map shows, and that's
17 what I based my interpretation on.

18 Q. Okay. Up at the top of page 57-25 of the Final
19 Narrative, it says Field Observers. Do you see that?

20 A. Yes.

21 Q. So, they're basing their information here based on
22 their observations as they fought the fire; isn't that right?

23 A. And were they in the fuel break? The proposed fuel
24 break zone when the fire burned through on the 29th?

25 Q. Well --

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1 A. And if not, then they have no direct knowledge of
2 what burned during the fire.

3 Q. Well, it's clear that what knowledge they have
4 based on their observations is that these fuel types that are
5 in your models weren't, in fact, in the fire area.

6 A. I disagree.

7 Q. Okay. In any event, let's assume that the fuel
8 types that you have placed or that are in your models are
9 there. They could have been treated, isn't that right?

10 A. Some of them could be.

11 Q. Which ones couldn't be?

12 A. Well, grass is going to come back to grass, and
13 that's a meadow.

14 Q. When you say "come back" --

15 A. Right.

16 Q. -- you mean after it's been treated, right?

17 A. Right.

18 Q. So, it can be treated, can't it?

19 A. Yes.

20 Q. All right. Yesterday, you testified that you
21 didn't think that these treatment areas could actually be
22 converted to a Fuel Model 8. Do you remember that?

23 A. Yes.

24 Q. And that's because of the fact that prescribed fire
25 -- a broadcast burn fire is inappropriate for this -- for

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1 this area and these kinds of trees, and the only way to get
2 rid of the duff and the litter is to have that kind of a
3 broadcast burn. Is that correct?

4 A. No, sir.

5 Q. All right. Well, you say -- I thought you had
6 testified -- let's just go back. I thought you testified
7 that it couldn't be -- these treatment areas couldn't be
8 converted to a Fuel Model 8 because you couldn't deal with
9 the duff and the litter.

10 A. No. No. In fact, what I stated yesterday was that
11 Fuel Model 8 is an inappropriate characterization of post-
12 treatment fuels because the natural recovery following
13 treatment is to grass and resprouting brush, not to a compact
14 needle litter layer. So, that's the point, is that the
15 vegetation recovery does not comport with the description of
16 Fuel Model 8.

17 Q. Okay, let me see if I can break that answer down a
18 little bit. So, are you saying that you can convert to a
19 Fuel Model 8 but that what happens after you've converted to
20 a Fuel Model 8 is that grass and shrub regenerate and,
21 therefore, it doesn't stay a Fuel Model 8.

22 A. No, it doesn't even go to a Fuel Model 8. It goes
23 to a grass and brush-dominated system, with small tree
24 reproduction. And, so, post-treatment, I would not
25 characterize a treatment as producing a Fuel Model 8. I

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1 would characterize the treatment as producing grass and
2 brush.

3 Q. Okay. So, if the -- would you agree with me that
4 the majority of the treatment areas are Fuel Model 10? I
5 mean, I understand you say that there is some grass and brush
6 in it, but the vast majority of the treatment areas are Fuel
7 Model 10 forest, correct?

8 A. Yes.

9 Q. Okay. So, I want to make sure I understand what
10 you're saying. Are you saying that you cannot convert those
11 Fuel Model 10 forests to a Fuel Model 8?

12 A. Right.

13 Q. And you're saying that because by reducing the
14 dead-down material on the forest floor, reducing the small
15 trees in the understory, changing the composition to a Fuel
16 Model 8 forest causes grass and shrubs to generate.

17 A. Okay, let's back up just a little bit. What I'm
18 saying is that a treatment that you would perform here,
19 whether you thin the forest out or not, but by using
20 prescribed fire you will remove all the duff and the litter,
21 as you're saying, and you will -- this is with a prescribed
22 fire.

23 Q. Okay, let me back up because I don't want to be
24 missing each other.

25 A. Okay.

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1 Q. I'm not talking about using prescribed fire. I
2 thought yesterday -- and I just want to make sure I'm clear.
3 I thought yesterday you testified that prescribed fire, other
4 than just using it for activity fuels that are piled, but a
5 broadcast burn prescribed fire is not appropriate for this
6 kind of a forest. Is that right? Was that your testimony
7 yesterday?

8 A. No, my testimony was a prescribed fire will kill
9 all of the trees in the stand, but it is, as in all of these
10 documents that you've shown me, identified as being the most
11 effective surface fuel reduction tool that we have in the
12 arsenal. So, if you don't do that, you are not going to get
13 much of a fuel treatment.

14 Q. So, you're saying that mechanical treatments, going
15 in and removing or piling the dead-down material is simply
16 ineffective.

17 A. Yes.

18 Q. And why is that?

19 A. Because you're leaving all of the material on the
20 ground, the preexisting material that's not merchantable.
21 You're not going through there with a rake and raking up all
22 the duff and the litter. You're not removing all the rotten
23 material and piling it. That's completely impractical over
24 large areas.

25 Q. Okay, let me stop you, because now I'm to the point

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1 where I thought I was yesterday in understanding you. So,
2 let's just back up. You can mechanically treat an FM 10
3 forest, can't you?

4 A. Sure.

5 Q. You can go in and you can remove the smaller trees
6 and you can remove dead-down material. You can do that
7 through mechanical treatments, correct?

8 A. Yes.

9 Q. Okay. And, so, what's left -- I think what you're
10 saying, then, is what's left is the duff and the litter on
11 the forest floor, correct?

12 A. That's right, and rotten wood and all that.

13 Q. And that's -- I'm sorry to interrupt.

14 A. And rotten wood and other material that's not --
15 not accessible to mechanical treatment, yes.

16 Q. Okay. Well, rotten wood that is sufficiently large
17 enough that, you know, it can be removed and burned in a
18 prescribed burn. I mean, it can be piled.

19 A. Well, yeah, I --

20 Q. But you're talking about the smaller stuff.

21 A. The smaller stuff, which catches embers and helps
22 propagate the fire under wildfire conditions through there,
23 yeah.

24 Q. Okay. So, let's turn to Plaintiff's Exhibit 5,
25 which is the Aids -- the Anderson Aids to Determining Fuel

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1 Models.

2 A. Yes.

3 Q. And you should have it there. Now, let's go to
4 page 11 of that. It's 5-13. And this is the description --
5 Dr. Anderson's, I'm sure, description of Fuel Model 8,
6 correct?

7 A. Yes.

8 Q. And we look at the photographs that he says
9 illustrates Fuel Model 8. If you look at the bottom
10 photograph, it looks to me as a layperson like there's a lot
11 of litter and duff on that forest floor. Is that right?

12 A. Yes. Yes.

13 Q. That hasn't been removed.

14 A. The very bottom photograph is -- yes, birch-aspen
15 forest with leaf litter.

16 Q. And there -- in the second photograph, the middle
17 photograph, there seems to be, you know, vegetation and other
18 organic materials on the forest floor. In fact, both of the
19 other photographs show that; isn't that right?

20 A. Yes.

21 Q. All right. Are you saying that in an FM 8 --
22 converting to an FM 8 forest in the treatment areas that Mr.
23 Schulte is proposing the kind of forest floors that we're
24 seeing here would have to be removed? In other words --

25 A. No, no. I'm saying that you can't achieve

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1 conditions that are depicted in those photographs by treating
2 fuels in a subalpine forest of Glacier National Park or the
3 Blackfeet Reservation. That's what I'm saying.

4 Q. And that's because the litter that we see in these
5 photographs that's on the forest floors in these proposed
6 areas needs to be removed and simply can't be. Is that what
7 you're saying, or you're saying that there's some sort of
8 regeneration after you've opened the canopy up and allowed
9 sunlight to come in?

10 A. There is that, but no fuel treatment stays static
11 for very long, and that's part of the problem with any fuel
12 treatment is scheduling maintenance or the addition of other
13 units into a landscape in order to maintain overall
14 effectiveness of the treatment design.

15 Q. All right. And I don't want to get bogged down.
16 I'm going to move on in just a minute here, but I just want
17 to try to understand. It seems to me, just looking at these
18 photographs, that there's a lot of duff and litter on the
19 floors of --

20 A. There is.

21 Q. -- these forests.

22 A. That's right.

23 Q. And, clearly, if you convert the treatment areas
24 that Mr. Schulte is proposing to an FM 8, there's still going
25 to be some litter and duff on the forest floors, correct?

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1 A. Yes, but the point is that in these subalpine
2 forests grasses and shrubs are dominating in the understory.
3 And if you look at pictures from the forest inventory plots
4 there, it demonstrates that quite clearly. So, what I'm
5 saying is it's not achievable to convert these 10s to an 8.
6 That's not just a one-way kind of a street.

7 Q. Okay. And, so -- and I'm about to move on, but I
8 want to make sure I'm clear.

9 A. Yeah.

10 Q. You're saying that it's the grasses and the shrubs
11 that are the problem in the treatment areas that Mr. Schulte
12 is proposing. Is that right?

13 A. Well, that's what recovers naturally following some
14 kind of disturbance such as a treatment, yes.

15 Q. And I think we've established that it's possible to
16 treat both of those cover types, correct?

17 A. Yes, and how are you proposing to treat those?
18 With prescribed fire? If so, you're going to kill all the
19 overstory trees, let more light in, and stimulate more grass
20 and brush recovery.

21 Q. Okay, so --

22 A. So, this is the problem we're having here in
23 communicating, I think.

24 Q. Okay. And, so, let me see if I can work it out.
25 It's possible to treat brush cover through mechanical means.

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1 Isn't that right?

2 A. Yes, if it's brush field, sure.

3 Q. Yeah. And, so, the brush can be treated
4 mechanically, can't it?

5 A. Sure.

6 Q. And those treatments can be repeated, can't they?

7 A. Yes.

8 Q. Grass --

9 A. And they may not be effective at changing fire
10 behavior.

11 Q. The grass is probably much more difficult to treat
12 mechanically. Can we agree on that?

13 A. You'd have to mow it, I guess.

14 Q. Well, do you remember -- were you in the courtroom
15 when Mr. LaPlant testified yesterday?

16 A. No.

17 Q. Okay.

18 A. Well, maybe. I can't remember.

19 Q. Do you remember he testified that he saw cattle --

20 A. Oh, yes.

21 Q. -- grazing in the forest?

22 A. Sure, I was there.

23 Q. In fact, this forest is a forest where cattle and
24 sheep graze. Isn't that right?

25 A. I don't now.

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1 Q. Well, cattle and sheep are one means of controlling
2 grass, of treating grass. Isn't that true?
3 A. Yes. In the national park?
4 Q. Are you asking me --
5 A. Well, is --
6 Q. -- well, first of all, let me ask the questions.
7 A. Yeah.
8 Q. But are you suggesting that in Glacier National
9 Park that wouldn't be possible?
10 A. Adding grazing to the national park is a whole
11 different challenge.
12 Q. Well, my question is -- okay. And is that because
13 of the way you understand the Park to be managed?
14 A. It's the way the Park is managed, yes.
15 Q. You're not a legal expert?
16 A. No.
17 Q. You're not here offering a legal opinion regarding
18 the relationship between management policies in Glacier
19 National Park and trust responsibilities on Indian
20 reservations.
21 A. No.
22 Q. Okay. Now, let's go to your Case Number 2, which I
23 think is at Plaintiff's Exhibit 94. It's described at, I
24 think, 94-11. Excuse me, 94-12. It's page 11 of your
25 report. Tell me when you're there.

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1 A. I'm there.

2 Q. Okay. So, Case Number 2 is a -- is your model in
3 which you convert as Mr. Schulte did from an FM 10 to an FM
4 8, correct?

5 A. Yes.

6 Q. And you don't include these other cover types that
7 we've just been talking about, correct?

8 A. That's right.

9 Q. But you do reduce the canopy by 90 percent.

10 A. No, I reduce it to a value of 10 percent.

11 Q. What does that mean?

12 A. So, the difference between what your question was
13 and my answer is that it started off at a canopy cover of 50
14 percent or 75 percent. Those were categories in the LANDFIRE
15 data. And the -- according to Mr. Schulte's recommendations,
16 the canopy cover would then modify to a inter-crown spacing
17 of 14 to 20 feet. So, that is the end point of following all
18 of the treatment. And that means that it would be reduced to
19 a level of approximately 10 percent.

20 Q. Okay, from 75 percent to 10 percent.

21 A. That's right.

22 Q. All right. And, so, first of all, I think you
23 testified that Mr. Schulte -- well, strike that because I'm
24 not remembering your testimony exactly. What Mr. Schulte did
25 in his modeling is he chose not to change the canopy from --

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1 he chose to leave the canopy intact, is that fair?

2 A. Well, whether he chose to or whether he did, that's
3 what occurred.

4 Q. Well, he left the canopy intact in his modeling.

5 A. Yes.

6 Q. And you reduced it from 75 percent to 10 percent,
7 correct?

8 A. I reduced it from whatever it started at to 10
9 percent.

10 Q. Okay. And your numbers today were -- it was 50 or
11 75 percent; is that right?

12 A. I believe there were two categories of canopy cover
13 in the initial LANDFIRE data. One indicated canopy cover of
14 50 percent; and one indicated 75 percent. So, yes.

15 Q. And I think you testified yesterday that you did
16 that -- you made your mathematical calculation regarding the
17 14 to 20-foot spacings by making an assumption that the
18 canopy spacing that existed there was ten feet.

19 A. No, the crown diameter was ten feet.

20 Q. You made an assumption that the crown diameters
21 were ten feet, correct?

22 A. I made it very explicit, that's right.

23 Q. Okay. You didn't have any evidence -- documentary
24 evidence of that; you made that assumption. Correct?

25 A. Yes.

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1 Q. Okay. And, so, you introduced that subjective
2 decision into your modeling.

3 A. Well, it's my judgment that 10 feet is an
4 appropriate -- approximate diameter for crowns of the species
5 in subalpine forest.

6 Q. You did not report any source for that judgment.

7 A. No.

8 Q. So, you opened up the canopy quite substantially,
9 then, isn't that right?

10 A. According to Mr. Schulte's specifications, yes.

11 Q. Well, according to his specifications based on your
12 assumption of the crown spacing.

13 A. Well, we could do some calculations right now to
14 examine sensitivity of my assumption to Mr. Schulte's
15 specifications if you'd like.

16 Q. Those weren't reported in your report, correct?
17 These calculations that you just mentioned.

18 A. Yes, it is.

19 Q. Well, I'm talking about the -- well, there was no
20 source reported in your report --

21 A. I did not cite a source. That's right.

22 Q. Okay. You found in Case 2 that by opening up the
23 canopy very substantially it created additional wind flow
24 that promoted fire spread. Isn't that right?

25 A. Yes.

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1 Q. So, if all of this work that has been done in this
2 case to think about this problem of protecting the Blackfeet
3 Forest had been done back in 1995, and a forest manager
4 looked at what you found in your modeling, that opening up
5 the canopy actually produced or generated fire spread,
6 wouldn't you agree that that forest manager would make a
7 decision not to include that in the treatment prescription,
8 not to include --

9 A. So, totally hypothetical --

10 MR. BAIR: Objection, Your Honor. This calls for
11 speculation.

12 THE COURT: I'll sustain the objection.

13 BY MR. GRAYBILL:

14 Q. Okay. Sir, I think you've testified that you're an
15 expert on fire behavior, correct?

16 A. Yes.

17 Q. And you've consulted with agencies with regard to
18 their needs in trying to protect assets from wildland fire,
19 correct?

20 A. That's correct.

21 Q. So, if in consulting with one of these agencies you
22 found that opening up the canopy generated more fire spread
23 based on your modeling, wouldn't you tell your client, the
24 person you're consulting with, maybe we oughtn't to open up
25 the canopy in this way with regard to this particular fuel

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1 reduction treatment.

2 A. I certainly would in ponderosa pine, mixed conifer
3 ecosystems where that is entirely appropriate and surface
4 fuel modification can be conducted routinely with prescribed
5 fire, but I would not be giving that same kind of a
6 recommendation for subalpine forest.

7 Q. Okay. In any event, if you found that something in
8 your modeling promoted fire spread, you would not want to
9 include that in your prescription, correct?

10 A. If possible.

11 Q. And, in fact, engaging in this sort of management
12 process, trying to protect assets from wildland fire, I mean,
13 that's a trial-and-error process, isn't it? You're trying to
14 figure out what works.

15 A. Yes.

16 Q. Okay. Let's talk about some of the errors that you
17 claim Mr. Schulte made. Let's start with the notion that he
18 started the fire on the wrong date. Have you heard the
19 testimony that, in fact, there were reports -- I mean, I can
20 pull out the investigative report -- but there were reports
21 of smoke on the 26th and the 27th?

22 A. I've heard people mention it. I've not read that
23 in anything.

24 Q. Do you doubt that that is true that there were
25 reports of smoke?

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1 A. I don't doubt it. I don't know what to think of
2 it, but I don't doubt it.

3 Q. Well, in fact, if there was -- if there were -- a
4 number of witnesses reported smelling smoke in the forest two
5 days before a fire was actually reported, isn't it likely,
6 given the fact that campfires aren't allowed in the Red Eagle
7 Lake area, isn't it likely that the smoke they were smelling
8 was the smoke from the beginning of the Red Eagle Fire?

9 MR. BAIR: Objection, Your Honor. This again calls
10 for speculation. Furthermore, there's a foundational issue.
11 Dr. Finney has already testified that he has no familiarity
12 with these reports except for overhearing some testimony in
13 court.

14 THE COURT: I'll sustain the objection.

15 BY MR. GRAYBILL:

16 Q. Okay. Well, let's turn to Exhibit 96, Plaintiff's
17 Exhibit 96. Do you have that, Dr. Finney?

18 A. It looks like it.

19 Q. Excuse me. It's Defendant's Exhibit 96.

20 A. Oh, yeah.

21 Q. It should have a little D in front of it. And do
22 you see that that's a National Park Service Investigative
23 Services Branch investigation? Up at the top?

24 A. Yes. I have a different sheet than what's
25 displayed here, but that's it.

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1 Q. Okay. And it's entitled Red Eagle Fire
2 Investigation?

3 A. Yes.

4 Q. And in the Summary section of this page, it says
5 the fire was first observed as a column of smoke on July
6 28th?

7 A. Yes, I see that.

8 Q. And the fact that it says it's first observed on
9 the 28th doesn't mean that it started on the 28th; would you
10 agree with that?

11 A. Yes.

12 Q. All right. And if you'd turn to page 3 of the
13 report, which is 96-3, whoever the investigator was who
14 authored this report in the last paragraph of this report
15 felt that it was important to include the following:
16 "Several witnesses stated they smelled an odor of smoke south
17 of Red Eagle Lake sometime before the reported initial
18 sightings of the fire. None of these witnesses could confirm
19 any specific origin of the odor. The reports of the odor of
20 smoke occurred between July 26th and the evening of the 27th.
21 One witness described a smoldering smoke smell." Do you see
22 that?

23 A. I do.

24 Q. All right. Given that information, if you know, do
25 you have an opinion about whether or not since two days later

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1 there was an observed fire, this could have been the Red
2 Eagle Fire before it was observed, causing this smoke. If
3 you know?

4 A. Oh, I don't know.

5 Q. Okay. If it were the Red Eagle Fire, it's clear
6 that it hadn't been observed yet.

7 A. Yes.

8 Q. And since it hadn't been observed yet, it's not
9 known whether it was spreading or simply smoldering in one
10 location; isn't that true -- if this were the Red Eagle Fire?

11 A. I guess so, yes.

12 Q. Is it true that the reason that the start date is
13 important to you is because you want to in simulating a fire
14 like the Red Eagle Fire, you want to make sure that the
15 weather data in particular coincides with the movement of the
16 fire across the landscape?

17 A. Yes.

18 Q. Okay. And, so, isn't it important, then, to know
19 when the fire comes into contact with the treatments?

20 A. Yes.

21 Q. All right, I mean, there's been a lot of discussion
22 about when it crossed the border with the -- with the
23 Reservation, but isn't the important issue with regard to
24 determining the efficacy of the treatments knowing when the
25 fire crossed or encountered -- first encountered the

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1 treatments? Isn't that true?

2 A. I think there are two issues. One is in the
3 calibration phase, we have a benchmark of the fire crossing
4 the boundary at a certain time. And since that was an
5 observation that places the fire at a specific point, that's
6 something that we can evaluate a simulation against. And so,
7 that is a fact in the case, right? It's got some imprecision
8 in it, but it's a fact. So, that's one purpose of trying to
9 establish the arrival time of the fire at a given point.

10 The other point that you're making, I think, is
11 that what we're interested in here is evaluating from the
12 model standpoint whether or not a treatment encountered by
13 the fire at a particular time would have had a particular
14 effect.

15 Q. Right.

16 A. Okay.

17 Q. And it's true, isn't it, that with regard to
18 evaluating the treatment, you want to know what time the fire
19 encounters the treatment, right?

20 A. Yes.

21 Q. And do you know what time Mr. Schulte -- Mr.
22 Schulte's simulated fire encountered the treatments he
23 proposed?

24 A. Which one of his simulations? Which one of his
25 treatments?

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1 Q. In the supplemental report.

2 A. In the supplemental. Well, he testified that it
3 arrived at the treatment boundary -- was it 1600 hours on the
4 29th.

5 Q. And, so, do you know when the winds died down with
6 regard to the Red Eagle Fire?

7 A. Just from the weather station record at St. Mary,
8 and that was -- there was a lull early morning hours on the
9 30th, but then after the 30th was over is when the winds
10 died.

11 Q. Okay. And, so, the point is that Mr. Schulte's
12 simulated fire encounters the treatment areas at 1600 on the
13 29th. The wind doesn't die down until 2:00 a.m. on the 30th.
14 Isn't that right?

15 A. Fair enough.

16 Q. You contended that Mr. Schulte erred about -- with
17 regard to the ignition location. In fact, isn't it true that
18 there was no cause determined for the Red Eagle Fire?

19 A. As far as I know.

20 Q. And isn't it true that there was no actual ignition
21 point determined for the Red Eagle Fire?

22 A. I think there was a lat/long specified by the
23 forces that responded on initial attack.

24 Q. But there's no specific ignition point that was
25 identified; isn't that right? If you know.

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1 A. Well, the lat/longitude -- latitude/longitude
2 reported there would indicate that there was a point that was
3 identified.

4 Q. Could you turn to page 9. It's 96-11. It's
5 Exhibit 96. It's the one you have open. It's the
6 investigative report.

7 A. Okay.

8 Q. And under the section called Conclusion, about five
9 lines down, it says in referencing the state fire marshal's
10 report, "no specific point of origin was located."

11 A. Yes.

12 Q. Okay. Isn't it true that with regard to the
13 location of the fire start in your simulations and in Mr.
14 Schulte's simulations that again when the fire encountered
15 the treatment is what's important with regard to determining
16 the effectiveness of the treatment?

17 A. Partly.

18 Q. You criticized Mr. Schulte for not calibrating for
19 spotting. And he criticized himself for that. Ultimately,
20 he did calibrate for spotting in his supplemental models;
21 isn't that correct?

22 A. Well, he enabled spotting, so...

23 Q. He enabled spotting?

24 A. Yes.

25 Q. Have you made mistakes when you have modeled in

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1 FARSITE?

2 A. To deny mistakes is to deny being human, yes.

3 Q. You criticized him, as I understand your testimony
4 yesterday, for using the suppression function in FARSITE. Do
5 you remember -- and the suppression function is the function
6 that allows applying suppression forces to a fire, correct?

7 A. Yes.

8 Q. And you criticized him for that, correct?

9 A. Well, I just don't think that it's reliable. It's
10 -- everybody would do it a little differently.

11 Q. Do you remember the exhibit that was marked
12 yesterday as Defendant's Exhibit 186? I don't know if you
13 have that in front of you.

14 A. I don't anymore, but --

15 Q. This is the Defendant's Exhibit entitled Overview
16 of FARSITE Process.

17 A. Yes.

18 MR. GRAYBILL: May I approach, Your Honor?

19 THE COURT: Yes.

20 THE WITNESS: Thank you.

21 BY MR. GRAYBILL:

22 Q. This is a document that, as I understand it, is on
23 the FARSITE website, correct?

24 A. It's with the online help that comes with the
25 program.

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1 Q. Okay. And it basically is a -- you know, an
2 instructional guide helping the user use FARSITE effectively,
3 correct?

4 A. Right.

5 Q. Where does it say in that document not to use the
6 suppression function?

7 A. It doesn't.

8 Q. You also yesterday seemed to criticize FARSITE
9 itself. Let me just ask you this question. Isn't it true
10 that fire behavior analysts from all of the five federal land
11 management agencies use FARSITE?

12 A. Yes.

13 Q. You use FARSITE yourself, I take it.

14 A. Yes.

15 Q. And you do so in your research?

16 A. Not recently, but, yes, I have.

17 Q. You were critical, I think, of Mr. -- of the size
18 of Mr. Schulte's proposed fuel reduction treatments, is that
19 correct?

20 A. In a number of ways, yes.

21 Q. Well, let's turn to Plaintiff's Exhibit 30. You
22 should have that.

23 This is the article that I think was used in your
24 direct examination yesterday called The Use of Shaded Land --
25 of Shaded Fuel Breaks in Landscape Fire Management.

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1 A. Yes.

2 Q. And you are a coauthor of this article?

3 A. Yes.

4 Q. And this is an article that was published, it looks
5 like, in 1999.

6 A. 2000.

7 Q. In 2000, okay. If you turn to page 30-9, which is
8 page 63 of the article, it says there that fuel management
9 can be done on a landscape level. Isn't that correct? That
10 first column?

11 A. Well, in general, I agree with that.

12 Q. Okay.

13 A. But I don't find exactly that statement, but --

14 Q. If you'll look in the first column there, about
15 four lines down, it says, "A landscape-level approach to
16 fuels looks at the large areas as a whole, in an attempt to
17 fragment the existing continuous heavy fuel and high-risk
18 areas."

19 A. Yes.

20 Q. And it says fuel breaks may be a part of that
21 strategy.

22 A. Right.

23 Q. Okay. And, so, would you agree that fuels
24 management can be done on a landscape level?

25 A. Absolutely.

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1 Q. All right. Area-wide -- well, strike that.

2 If you turn to page 30-10, the next page.

3 A. I'm there.

4 Q. In the second column, first full paragraph, the
5 first line, it says "Area treatments, rather than being an
6 alternative to fuelbreaks, are an expansion of the fuelbreak
7 concept to wider areas of the landscape." Do you see that?

8 A. I'm trying to find it.

9 Q. I'm sorry. This is the second column on page 30-
10 10. It's page 64.

11 A. I don't have 30-10.

12 Q. Oh, you don't have it?

13 A. No. I can look on the screen. It's okay.

14 Q. You can see it on the screen. All right. So,
15 there in the second column, the first full paragraph, "Area
16 treatments, rather than being an alternative to fuelbreaks,
17 are an expansion of the fuelbreak concept to wider areas of
18 the landscape." Correct?

19 A. That's what it says.

20 Q. And do you agree with that?

21 A. I think that could be worded a little bit more
22 carefully, because --

23 Q. Isn't it true that there's no absolute standard for
24 the width of fuel breaks or fuel treatments?

25 A. That's true. I mean, fuel break has a very

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1 specific implementation of fuel treatment, so --

2 Q. Well, isn't it, then, also true that there's no
3 absolute standard for the width of landscape-level fuel
4 treatments?

5 A. No, that's right.

6 Q. Isn't it true that wider fuel breaks are more
7 effective than narrow ones?

8 A. Are you talking about fuel breaks or fuel
9 treatments in general?

10 Q. Fuel breaks.

11 A. Probably.

12 Q. Okay. Well, what about fuel treatments on a
13 landscape level, wouldn't it be true that wider landscape-
14 level treatments would be more effective than narrow ones?

15 A. Not necessarily because the objective -- the
16 performance objective for fuel treatments on an area basis is
17 different than a fuel break. The intent is not to -- or the
18 intention is not to stop fires using them; it's to change
19 behavior in the movement of large fires. A fuel break is
20 specifically intended to be used by suppression forces to
21 stop fire. So, it goes to what is the objective for doing
22 the fuel treatments.

23 Q. In doing landscape-level fuel reductions
24 treatments, isn't the objective to change fire behavior in
25 order to make it more susceptible to control?

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1 A. Not necessarily at all.

2 Q. Is that one possible objective of landscape --

3 A. Yes.

4 Q. Well, let me finish my question. Isn't that one
5 objective -- one potential objective of landscape-level
6 treatments?

7 A. Yes.

8 Q. And isn't it true that the size of fuel reduction
9 treatments, whether they're landscape-level or fuel breaks,
10 one of the factors that determines their size is the values
11 at risk?

12 A. Perhaps. Another main factor is spotting
13 distances.

14 Q. Okay. If you could go back to Exhibit 140,
15 Plaintiff's Exhibit 140 that's now been introduced. And I'm
16 not sure I understand this, so I may be completely -- I may
17 be going down the wrong road here, but if you could turn to
18 140-12 of that exhibit.

19 A. Okay, I'm there.

20 Q. And as I understand it, this is an article about
21 modeling fuel treatment patterns and how they influence large
22 fires; is that correct?

23 A. Yes.

24 Q. And you say there in the last paragraph, "Maximum
25 treatment unit dimension was varied from 800 to 2500m." It

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1 looks like .5 to 1.5 miles in diameter, or up to 160 to 960
2 acres if the units were square. Do you see that?

3 A. Yes.

4 Q. Now, is the unit then -- the treatment unit -- is
5 that a treatment unit that you're modeling?

6 A. Yes.

7 Q. And is that a treatment unit that is up to a mile
8 and a half long or a mile and a half wide?

9 A. It's hard to say in this program. It's hard to be
10 specific. It has a maximum dimension in any dimension.

11 Q. If you square it, it's 960 acres, correct?

12 A. Yeah.

13 Q. And if you put two of these units side by side,
14 you're over the number of acres that Mr. Schulte is
15 recommending for at least one side of the border.

16 A. Perhaps, yeah. But this is talking about area
17 treatments, not about fuel breaks, and that's a critical
18 distinction.

19 Q. Well, I understand -- well, let me just ask. Let
20 me ask the question. Is what Mr. Schulte is proposing in
21 doing a five-mile-long -- well, let me withdraw that and ask
22 this.

23 I think we established yesterday that Mr. Schulte
24 is proposing a series of fuel breaks along the border where
25 FM 10 forest is located on the tribal side. The area of the

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1 Red Eagle Fire, that would mean a one-half-mile-wide and up
2 to five-mile-long fuel treatment. Is that a landscape-level
3 or landscape-area-size fuel treatment?

4 A. In area, but not in -- not in its intended purpose.
5 So, as I'm trying to make clear here, this paper is about
6 optimizing fuel treatment locations across an entire
7 landscape to change the behavior of fires moving in and among
8 those units, not with the express intent of stopping a fire
9 at any one of them. There is a difference.

10 Q. And I thought your testimony yesterday was that
11 whether it's a fuel break of a fuel treatment, you don't stop
12 fires; you change the intensity or reduce the intensity of
13 fires potentially in order to hopefully achieve control.
14 Wasn't that right?

15 A. For a fuel break, that's correct, not necessarily
16 for an area treatment, because there's many reasons to do
17 treatments, not just to stop fires or to facilitate
18 suppression.

19 Q. But we've established that one potential reason to
20 do a landscape-level treatment is to change behavior to make
21 it more susceptible to treatment -- I mean to control,
22 correct?

23 A. That's one.

24 Q. Were you present for Mr. Gladstone's testimony when
25 he was talking about that photograph that he had taken that

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1 showed the clearcut area -- 30-year-old clearcut area in the
2 Red Eagle Fire perimeter that survived the fire?

3 A. No, I wasn't.

4 Q. Could we go to Plaintiff's Exhibit 67-20. This is
5 from a history of the Blackfeet Forest management. And --

6 A. Sorry, what was the number? Is it -- do I have it
7 here?

8 Q. I may have the wrong number, because that's not the
9 photo. Let me just pull out the ...

10 I'm sorry, it's -- you know what, you may not have
11 it. You may need to look on the screen. It's 67-26. And if
12 we could just, yeah, show that photograph with its caption.
13 And this is a photograph that Mr. Gladstone took and
14 testified about. And do you see there it says, "Healthy 30-
15 Year Old Timber Stand from Clearcut on North Side of Divide
16 Mountain, Which Survived Red Eagle Fire Because Hazardous
17 Fuel Load Was Removed." Do you see that?

18 A. Yes.

19 Q. So, isn't this an example of a stand that survives
20 a highly intense fire as a result of reducing a fuel load?

21 A. Not necessarily.

22 Q. It certainly is not paved, is it? I mean, there's
23 vegetation there in that photograph, correct?

24 A. That's right.

25 Q. And according to the forest manager, who was there

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1 at the time of the Red Eagle Fire and who took this
2 photograph, this is an area of the forest that survived the
3 Red Eagle Fire.

4 A. That's what he says.

5 Q. Do you dispute that?

6 A. No, but I've been involved in many post-fire
7 investigations looking at fuel treatment performance, and
8 it's always difficult to attribute survival of one stand or
9 another to one particular factor. There -- because it
10 involves a spatial arrangement of various fuels and timing of
11 fire behavior and other factors, there's usually a more
12 complex story there than just the site properties
13 contributing to the success or failure. So, I'm just --

14 Q. Go right ahead. I don't mean to interrupt you.

15 A. Oh, I thought someone was talking. So, I'm just --
16 I'm just leery of interpreting at face value site
17 characteristics and then as being the cause or savior,
18 because in many places on the Blackfeet Reservation that look
19 just like this, they didn't turn out like this after the
20 fire.

21 Q. Okay. Well, the fact of the matter is isn't it
22 true that most of the fire consumed Fuel Model 10 forest?

23 A. In areas that were not subject to harvest, that's
24 probably true.

25 Q. Okay. But this is an area that was subject to

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1 harvest and did have a reduced fuel load, correct, at least
2 according to the caption.

3 A. According to the caption, but there was lots of
4 other places there, as well.

5 Q. So -- and I think we may have touched on this
6 yesterday, assuming that what we're seeing here in this
7 photograph is an anomaly and this forest really could not be
8 protected with a landscape area fuel reduction treatment that
9 Mr. Schulte has proposed, would you agree with me that that
10 then would need to be communicated to the owner of the forest
11 by the manager of the forest so that the owner could make
12 appropriate decisions regarding how the forest should be
13 managed?

14 MR. BAIR: Objection, Your Honor. This falls
15 outside the scope of both Mr. Schulte's direct testimony and
16 also his expert reports.

17 MR. GRAYBILL: Well, I think he testified that he
18 does, in fact, consult on these very issues with land
19 management agencies, Your Honor.

20 THE COURT: I'll sustain the objection.

21 MR. GRAYBILL: Okay. Your Honor, those are all the
22 questions I have at this time.

23 THE COURT: All right. I have a question for Dr.
24 Finney, and if it raises any new questions that you all have,
25 that's going to be fine. But in an effort to cut through

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1 some of this and get to the heart of the matter, my question
2 is this. What recommendations, if any, would you propose to
3 protect the Blackfeet Tribal Forest from a fire such as the
4 Red Eagle Fire originating in Glacier National Park?

5 THE WITNESS: Well, Your Honor, that is a difficult
6 proposition because of the nature of the fire regime in those
7 forest types. And that's something that, very much like
8 Chapparell in Southern California or other stand-destroying
9 fire regimes, is difficult to modify. My recommendations
10 would be, if I were in a position to make those, is that to
11 manage the entire Blackfeet Forest as best it can be and
12 anticipate that at some point the timber harvest scheduling
13 will be disrupted by a fire, either starting within the
14 Reservation or on the Park side of it.

15 And at least then the forest is under a broad scale
16 management and values -- timber values and other values are
17 being managed with full recognition of the potential threat.
18 So, it's not something that just like an earthquake or a
19 flood that even if we recognize the imminent possibility of
20 that that we can necessarily alter course or protect
21 ourselves against some unwanted outcome. It's just -- we're
22 going to have to live with that kind of peril.

23 THE COURT: Knowing what you do from the evidence
24 and circumstances of this case, are there any reasonable
25 steps that could have been taken to keep the Red Eagle Fire

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1 out of the Blackfeet Tribal Forest?

2 THE WITNESS: No, sir, not in my opinion.

3 THE COURT: Would you recommend the use of fuel
4 breaks in any respect as being a reasonable step to protect
5 the forest?

6 THE WITNESS: I have difficulty recommending fuel
7 breaks, even in ecosystems where those fuel breaks are in
8 concert with the fire ecology in there, and for example,
9 ponderosa pine as we have discussed, simply because they
10 require -- the fuel break, just to make clear what I'm
11 referring to -- a fuel break that has the intention of
12 stopping a fire with the use of suppression forces, that's a
13 specific implementation, specific objective for fuel
14 treatments in general.

15 But I have a hard time recommending a fuel break
16 with that objective because it requires the presence of
17 suppression resources to make it effective. If that doesn't
18 occur, and we have a number of fires here burning in the
19 region at the moment, which -- and suppression resources are
20 limited or their accessibility is limited or the fire is
21 burning too quickly and impinges on the break before they can
22 get there, essentially the entire strategy becomes untenable
23 and the fire burns through the break eventually and moves
24 off.

25 The alternative, Your Honor, to a fuel break as a

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1 means of protection of either the forest or a community is to
2 manage the forest itself, especially and particularly if it's
3 in a forest type, such as ponderosa pine or mixed conifer,
4 where you can maintain that with prescribed burning. And,
5 so, what you're doing is you're bringing in a natural regime
6 of disturbance that is compatible with the ecology there and
7 no matter where a fire starts, the behavior is well modified
8 and suppression actions can then adapt to whatever kinds of
9 reduced behavior would then occur.

10 Is that clear?

11 THE COURT: Yeah. Thank you very much.

12 THE WITNESS: You're welcome.

13 THE COURT: Redirect?

14 MR. BAIR: Thank you, Your Honor.

15 REDIRECT EXAMINATION

16 BY MR. BAIR:

17 Q. Good morning, Dr. Finney.

18 Let's start by clearing up a definitional issue.

19 As you testified yesterday, can the term "mixed conifer"
20 simply mean a mixture of conifer species?

21 A. Apparently it can.

22 Q. That would be a sort of colloquial definition?

23 A. I would guess. Or maybe it's just a practical
24 definition used by some people, but it does not comport with
25 the definition in ecological texts.

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1 Q. So, as that term is used as a term of art in
2 ecological texts, what does it mean?

3 A. Well, mixed conifer forests generally are the upper
4 reaches of the lowest elevation forest type you have. And in
5 most cases in the West, it is ponderosa pine. So, as
6 ponderosa pine forests generally give way to other species at
7 the upper elevation or on more moist sites, there becomes a
8 mixture of other conifer species there. But they tend to
9 retain similar kinds of attributes with respect to being
10 resistant to fire.

11 And, so, we're talking about Douglas fir in this
12 part of the world and western larch, all of which are quite
13 resistant to surface fire when they become mature in size or
14 in age. And in other parts of the country, there are
15 different conifers that constitute a mixed conifer stand.

16 Q. And how does that compare to the term of art
17 "subalpine forest"?

18 A. Subalpine forest is comprised of species below the
19 alpine. Alpine is an area without trees. So, it goes all
20 the way up to tree line. Subalpine forest in this part of --
21 or on the east side of Glacier would be comprised of species
22 of lodgepole pine, Engelmann spruce, and subalpine fir; also
23 in some stands at the highest elevation, whitebark pine. And
24 even in the definitions that I disagree with or the
25 description of these stands as mixed conifer that I disagree

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1 with, the species composition they're describing is exactly
2 the same.

3 Q. So, let me ask two more questions about this, then.
4 First, do you continue to believe that the forests burned by
5 the Red Eagle Fire are fairly classified as subalpine
6 forests?

7 A. Yes.

8 Q. Okay. And, second, regardless of whether we call
9 it mixed conifer or subalpine, are the species that were
10 actually present here consistent with your conclusions about
11 fire ecology?

12 A. Absolutely. That's actually the basis for my
13 conclusion.

14 Q. Okay. Let's move on and discuss how to actually
15 implement Mr. Schulte's proposed fuel treatment. Would
16 mechanical treatments alone be effective in implementing the
17 fuel changes that Mr. Schulte describes?

18 A. No.

19 Q. Why not?

20 A. Well, mechanical treatments, as we've seen in many
21 of the research papers, achieve certain effects on the canopy
22 stratum, the canopy fuels, and the ladder fuels. That's
23 where they're particularly effective. Basically, you're
24 cutting trees out of the stand, and you're thinning out the
25 canopy. But the preexisting surface fuels and those that

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1 would be encouraged to grow following the opening of the
2 canopy need to be modified with a surface fuel treatment such
3 as prescribed burning.

4 Q. Are you aware of any way to implement these surface
5 fuel changes except for prescribed burning?

6 A. I'm not aware on a practical basis for a large
7 area. Like I said, for somebody's -- somebody's lot around
8 their house, sure there are many alternatives available, but
9 for a large area in a, you know, wildland setting, no, I'm
10 not aware.

11 Q. Would that include cows and sheep?

12 A. Right. I mean, grazing has a place in managing
13 fine herbaceous material, and it has demonstrated that to a
14 certain extent.

15 Q. And just to sum this issue up, does Mr. Schulte
16 make any conclusions about what method or mechanism would be
17 appropriate to implement this fuel break?

18 A. I don't recall any.

19 Q. Okay. And your opinion is that there would be no
20 way to implement the fuel changes on the surface level except
21 for prescribed burning?

22 A. Right.

23 Q. Okay. And you've already discussed some of the
24 concerns you have about that, so we won't belabor them.
25 Let's talk about when you ignited the prescribed -- I'm

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1 sorry, the modeled simulated fire. Does FARSITE have any way
2 of modeling smoldering fires?

3 A. No.

4 Q. Are there sometimes issues with determining exactly
5 when a fire ignited?

6 A. Oh, yes, of course.

7 Q. So, what is the best practice to ignite a fire in a
8 FARSITE simulation?

9 A. The best and standard practice is to use the last
10 known location, use an observation of where it was, even if
11 that is a polygon. And very often in operational settings,
12 that is when we're using modeling to project the growth of
13 active fires, as is going on in the region at the moment, we
14 don't start the simulation off at the earliest known
15 location. We start it off at the most recent known location.
16 So, we initialize it with -- the simulation with the most
17 current information and then let it run from there out into
18 the future.

19 Q. Let's move on to canopy cover issues. Is your 10
20 percent canopy cover used in some of your simulations
21 mathematically derived from a ten-foot crown diameter?

22 A. Yes.

23 Q. Is there any subjectivity in that mathematical
24 derivation?

25 A. Not in the math, but in the assumption of the ten-

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1 foot diameter, yes.

2 Q. And in your experience, is a ten-foot crown
3 diameter consistent with the kind of trees and the conditions
4 present here?

5 A. Yes. It's a round number. If it's 11, if it's 12,
6 you know, like I said, I wouldn't argue that. I don't have
7 any direct knowledge there, but ten feet is an appropriate
8 approximation.

9 Q. Do you believe that your 10 percent canopy cover
10 modeling is consistent with Mr. Schulte's proposal for a 14
11 to 20-foot crown spacing?

12 A. Yes.

13 Q. Okay. Mr. Graybill asked you yesterday about your
14 decision to model spotting at 1 percent. Could you tell us
15 why you did that?

16 A. I did that because it's common practice when you're
17 beginning a FARSITE simulation to make it run quickly and
18 start getting some feedback from the simulation on how well
19 all of your data and your settings are producing a known
20 result. This is the calibration phase. And in that
21 calibration phase, I observed that 1 percent spotting was
22 sufficient to produce the -- a close approximation of the
23 actual observed fire.

24 These simulations take a little bit of time, and I
25 had no reason to change it once I thought that it calibrated

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1 well at 1 percent.

2 Q. Can you offer some insight into how the simulation
3 might have changed if you'd used, for instance, a 5 percent
4 spotting rate?

5 A. In general, what happens because you are initiating
6 a lot more fires from the stochastic processes in there, what
7 happens is the fire spread rate tends to go up some because
8 by randomly selecting more embers to simulate the growth of,
9 what's happening is sometimes you get -- you have a higher
10 probability of actually sampling embers that travel a long
11 distance. They may be rare, but you have a higher chance of
12 getting those. And, so, in general, the fire spread rate
13 tends to go up.

14 Q. So, is it fair to say that you were being
15 conservative in using a 1 percent rate?

16 A. That's the consequence of using 1 percent versus 5
17 percent.

18 Q. I see. So, let's talk about the conversion of fuel
19 types within FARSITE. Within the polygon that Mr. Schulte
20 used in his modeling, what did he actually do in terms of
21 converting fuel types?

22 A. As I understand it, he used the tool called
23 Landscape Editor, to draw a polygon, defining the boundaries
24 of a proposed fuel break, and then selected the changes to
25 the fuel components that would -- he wanted to have

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1 implemented there. And in this case, it was just to change
2 all surface fuel types in there to a Fuel Model 8.

3 Q. Now, could that ever be done in reality?

4 A. What?

5 Q. What he's modeled?

6 A. Well, there's heterogeneity, and in any landscape.
7 And I don't think that -- as I've already said a number of
8 times, I don't think that treatments in these subalpine
9 forests would produce a Fuel Model 8.

10 Q. So, let's take a look at what Mr. Schulte said he
11 was doing. Could we pull up Plaintiff's Exhibit 87 at page
12 5, please.

13 Was it your understanding, Dr. Finney, that Mr.
14 Schulte's prescription was to change Fuel Model 10 to Fuel
15 Model 8?

16 A. Yes.

17 Q. Okay. Now, if we look at that third full paragraph
18 -- right there. The second sentence states, "Prudent forest
19 managers systematically would have converted Model 10 areas
20 to Model 8 areas in fuel breaks designed to stop crowning
21 fires from sweeping out of the Park." This is Mr. Schulte's
22 report. Does this comport with your understanding of what
23 Mr. Schulte was proposing?

24 A. Yes.

25 Q. Let's move on to page 10 of this document. Right

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1 where the magnifying glass is. Down a little, Megan. That
2 small paragraph states -- again, Mr. Schulte says, "I used
3 the Landscape Editor tool in Farsite to change the fuel types
4 that fell roughly east of the Blackfeet Nation's boundary
5 from a model 10 to a fuel model 8." Does that comport with
6 your understanding of what Mr. Schulte said he was doing, Dr.
7 Finney?

8 A. Well, there is some ambiguity here because he's
9 converting all fuel models to a Fuel Model 8, not just the 10
10 to an 8. Ten to an 8 would occur, but so would all the other
11 changes, using that tool in that way.

12 Q. But he does say from a Model 10 to a Fuel Model 8,
13 doesn't he?

14 A. Yes. Yes.

15 Q. And does that comport with your understanding about
16 what he meant to do?

17 A. I think that's what he meant to do is convert Fuel
18 Model 10 to a Fuel Model 8.

19 Q. So, in reviewing Mr. Schulte's written materials,
20 did you have any reason to believe that his prescription was
21 to change all fuel types to a Fuel Model 8?

22 A. No. I thought that was an oversight.

23 Q. Okay. Let's move on to discussing your Case 1. If
24 we could look at Plaintiff's Exhibit 94, which is Dr.
25 Finney's --

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1 THE COURT: Mr. Bair, let's take a morning break.

2 Let's reconvene at 11:15.

3 MR. BAIR: Thank you, Your Honor.

4 (Court in recess.)

5 THE COURT: Please be seated. You may go ahead,

6 Mr. Bair.

7 MR. BAIR: Thank you, Your Honor.

8 BY MR. BAIR:

9 Q. Dr. Finney, let's look at your supplemental
10 rebuttal report, Plaintiff's Exhibit 94, at page 13. In this
11 report, you state, "To be absolutely clear, this scenario" --
12 your Case 1 -- "does not condone the assumptions concerning
13 fuel treatment appropriateness or representativeness of
14 actual fuel conditions, but simply evaluates the fire
15 behavior consequences of Mr. Schulte's assumption."

16 First, do you condone the assumptions that Mr.
17 Schulte made that are reflected in your Case 1 in any way?

18 A. No.

19 Q. Do you believe that Case 1 in any way supports a
20 conclusion that Mr. Schulte's fuel break would be successful?

21 A. No.

22 Q. Let's move on and talk about some of the questions
23 Mr. Graybill asked you about vegetation types in this area.
24 Did you rely on Mr. Schulte's landscape files to determine
25 the vegetation types in the fire area for the purpose of your

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1 FARSITE simulations?

2 A. Yes.

3 Q. If those landscape files misrepresent the
4 vegetation types in the burn area, would that also affect Mr.
5 Schulte's modeling?

6 A. Yes.

7 Q. Mr. Graybill pointed out that the Final Narrative's
8 description of those fuel types differs somewhat from those
9 vegetation maps. Are narratives like that one typically
10 written after the fire has burned?

11 A. Yes.

12 Q. And is it possible that the vegetation maps you and
13 Mr. Schulte used could be more accurate than the Final
14 Narrative?

15 A. They could be.

16 Q. Okay. You stated yesterday that it's not possible
17 to simulate any specific fire. Does Mr. Schulte's modeling
18 reflect conditions substantially similar to how his fuel
19 break would have performed in the Red Eagle Fire?

20 A. I'm sorry, I don't understand.

21 Q. Do you believe that Mr. Schulte's modeling is an
22 accurate reflection of how his fuel break would actually
23 perform?

24 A. Oh, actually perform.

25 Q. Yes.

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1 A. No, I don't.

2 Q. Do you believe that your simulations are a more
3 accurate simulation of how that fuel break would have
4 performed in the Red Eagle Fire?

5 A. In Cases 5 and 6 in particular, yes.

6 Q. Okay. I think we can leave the FARSITE modeling
7 behind. Let's move on and talk about some of the science.
8 If you'd refer to Plaintiff's Exhibit 140, if we can pull
9 that up. I'd like to ask you just a couple of clarifying
10 questions.

11 Mr. Graybill pointed out that some of your analyses
12 in this document use diameters, if I understand, of .5 to 1.5
13 miles. Is that right?

14 A. Yes.

15 Q. What was the purpose of this article?

16 A. This article's purpose was to describe a method --
17 a computational routine that optimizes the location of fuel
18 treatments across a given landscape. And one of the
19 variables that is selectable by the user is the size of that
20 created area. That's a -- it's a maximum dimension that the
21 optimization program can put in place for each treatment
22 unit.

23 Q. So, let me ask you first, was this article meant in
24 any way to advocate for 1.5-mile-wide fuel breaks?

25 A. No, not any size in particular.

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1 Q. Okay. And was this article specific to fuel
2 breaks?

3 A. Not at all. Not pertaining to fuel breaks. I
4 mean, that specific -- with that specific intention to be
5 used by suppression resources in stopping fires, no. These
6 are area treatments across a landscape designed to change
7 fire behavior.

8 Q. And is that an important distinction?

9 A. It's a very important distinction.

10 Q. Why is that?

11 A. Well, it goes to what is the objective of the fuel
12 treatment itself. And the same fuel treatment prescription
13 can be used, but with different objectives. And in one case,
14 the same prescription can succeed, and in another, it can
15 fail. If its intended to only modify behavior such that the
16 forest survives in good condition following the wildfire,
17 then that can be a success. If it's intent is to be used by
18 suppression resources to stop a fire there, then that same
19 prescription, even though it modifies fire behavior, can fail
20 in its objective. So, the objective of the treatment is very
21 important to be clear about.

22 Q. So, even if you would agree that a fuel treatment
23 might succeed by modeling -- I'm sorry, modifying fire
24 behavior, does that mean that it would also succeed as a fuel
25 break?

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1 A. No.

2 Q. For those reasons you just stated.

3 A. Correct.

4 Q. Okay. Now, if we could move on to Plaintiff's
5 Exhibit 146 at page 10, and this is another academic article
6 that the Plaintiff put before you yesterday. Do you have
7 that? Oh, my apologies. If you just turn to 146-10, Dr.
8 Finney. In the third paragraph, toward the middle of the
9 paragraph, there's a sentence that Mr. Graybill asked you to
10 focus on yesterday, which states, "For high-severity fire
11 regimes in brushland and forest ecosystems, fuel management
12 objectives can change fire behavior, slowing overall fire
13 growth and improving fire suppression." Now, does that mean
14 that fuel treatments or fuel breaks can be effective in all
15 high-severity fire regimes?

16 A. Well, it depends on a number of factors, as we've
17 discussed: the layout of the unit, the size of the unit,
18 whether it's maintained or can be maintained, whether
19 suppression resources are available. There's many factors
20 that determine -- that go into that.

21 Q. Toward the bottom of this page, the very last
22 sentence, it states, "Fuel conditions change over time as a
23 result of fuel accretion, regrowth of understory vegetation,
24 and ingrowth of young trees." Are those issues that are
25 relevant to maintenance?

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1 A. Yes, in every -- in every vegetation type, in every
2 forest type, those are factors that go to the longevity of
3 the effects of the treatment.

4 Q. And can those effects also decrease the efficacy of
5 a treatment?

6 A. Oh, they do decrease the efficacy over time, at
7 different rates, depending on the ecosystem and how
8 productive it is.

9 Q. If we can move ahead two pages to page 146-12. At
10 page -12 and the subsequent two pages, there are discussions
11 of how much treatment is necessary as a proportion of the
12 landscape in order to be effective. Are you familiar with
13 this material, Dr. Finney?

14 A. Yes.

15 Q. And generally speaking, what does the article say
16 about these issues?

17 A. Generally speaking, the spatial pattern of the fuel
18 treatments across the landscape has a critical role,
19 especially at low amounts of area treated. So, the article
20 summarizes some results from other papers, comparing and
21 contrasting the effective random patterns of treatments
22 compared to more strategic patterns of treatments,
23 demonstrating that there is quite a difference in expected
24 aggregate effect in slowing fire movement across a landscape
25 based on just the pattern alone. Even for the same amount

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1 treated, the pattern makes a difference.

2 Q. So, even an optimal pattern, can you say with
3 certainty what proportion of the landscape would have to be
4 treated in order to be effective?

5 A. No, it's a variable. It goes from 0 to 100
6 percent, and the more you treat, the more you get.

7 Q. And is that a case-by-case analysis?

8 A. Yes.

9 MR. BAIR: May I approach, Your Honor?

10 THE COURT: Yes.

11 BY MR. BAIR:

12 Q. Do you recognize this document, Dr. Finney?

13 A. Yes, I do.

14 Q. What is this?

15 A. This is a paper that I wrote with my coauthor Jack
16 Cohen, talking about fuel treatments and community
17 protection.

18 Q. And does this appear to be a complete and accurate
19 copy of that paper?

20 A. I'll count the -- I'm pretty sure it is. It looks
21 right.

22 MR. BAIR: Your Honor, we would move to admit this
23 document as Defendant's Exhibit 187.

24 MR. GRAYBILL: We won't object, Your Honor.

25 THE COURT: All right. Defendant's Exhibit 187 is

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1 admitted.

2 (Defendant's Exhibit Number 187 was admitted into
3 evidence.)

4 BY MR. BAIR:

5 Q. Now, this is going to be a little awkward to work
6 through, Dr. Finney, because when we printed this, we lost
7 the page-by-page pagination. So, I hope you'll be patient
8 with me.

9 Could we pull that document up, Megan?

10 (Brief pause.)

11 BY MR. BAIR:

12 Q. Thank you. And if we could go to the next page,
13 which is the first full page of the article, this article
14 states, "Large fires burning under extreme conditions of high
15 winds and low humidity are difficult, if not impossible, to
16 suppress." Do you agree with that statement, Dr. Finney?

17 A. Yes.

18 Q. And, so, does that apply even if a fuel treatment
19 is in place?

20 A. Yes.

21 Q. And does it apply even if a fuel break is in place?

22 A. Yes.

23 Q. And is that a consideration in determining whether
24 a fuel break is likely to be effective?

25 A. Yes.

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1 Q. If we move ahead two pages from here, there's a
2 table marked Table 1. What does this table represent, Dr.
3 Finney?

4 A. This table is a -- kind of a summarization of some
5 -- at the time some common expectations for fuel treatments
6 and then some clarifying perspective on really what is more
7 in line with reality and experience.

8 Q. Let's talk about a couple of specific elements of
9 this. First, the fourth column states the expectation "Fuel
10 treatments will stop wildland fires." Is that a realistic
11 expectation?

12 A. No.

13 Q. What is more realistic?

14 A. Well, as has been brought out many times here in my
15 testimony that fuel treatments have in some vegetation types,
16 some forest types, have an excellent record of changing fire
17 behavior, but fires will not stop automatically, even though
18 the behavior is changed.

19 Q. And if we look at the next row, it states the
20 expectation, "Fuel management can be equally successful for
21 all vegetation and fire regimes." Is that an accurate
22 expectation?

23 A. No, that's not.

24 Q. What is more accurate, briefly?

25 A. Well, very briefly, as it goes into here, ponderosa

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1 pine and mixed conifer forests that have a high-frequency,
2 low-intensity fire regime allow for the effective fuel
3 treatment and maintenance that's entirely ecologically
4 compatible. High-elevation subalpine forests, as it says
5 right here, stand-destroying fire regimes don't have this --
6 afford the same opportunities.

7 Q. So, let's move on to discuss some specific
8 ecological issues with the proposal in this case. Just to
9 clear up the record, if Mr. Schulte's proposal to reduce Fuel
10 Model 10 forests to a lower fuel loading were implemented
11 across the entire boundary between the Park and the
12 Reservation, ecologically speaking, what would the result be?

13 A. Let me try to understand your question. Maybe you
14 could rephrase it. I'm not sure whether we're talking about
15 modeling or in reality.

16 Q. In reality, ecologically, what would be the end
17 result?

18 A. Well, in reality, a compatible treatment program --
19 let's say that we were going to implement a fuel break with
20 the intention of being used by suppression forces to stop
21 fire, the ecologically compatible technique would be
22 harvesting and prescribed burning once, and then follow --
23 having the effect of that in fuel reduction diminish over
24 time, say within a decade it would be a much different case.
25 And so, it may be more effective at the beginning of that

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1 treatment than it would be just within a few short years.

2 Q. And could you be certain that a fire would burn
3 through in those few short years?

4 A. Under the conditions of the Red Eagle Fire, yes.

5 Q. But if you were trying to do this a priori,
6 building a fuel break, could you know whether a fire would
7 burn through in a few years?

8 A. Well, I would say without having a specific
9 knowledge of a specific fire timing or location, chances are
10 that it would be occurring later, after the fuel treatment
11 benefits would expire.

12 Q. I see.

13 A. And, so, I would expect very little effect of the
14 fuel treatment in general.

15 Q. Now, that ecological result that you just
16 described, do you believe, based on your experience and
17 knowledge, that would be consistent with NEPA?

18 A. I --

19 MR. GRAYBILL: I'm going to object. I don't think
20 he's been designated as an expert on NEPA, Your Honor.

21 MR. BAIR: Dr. Finney has stated that he consults
22 with federal land management agencies on fuel management
23 issues. This is an impediment those management agencies
24 face, and we believe it's within the scope of his testimony.

25 MR. GRAYBILL: It's not been disclosed, Your Honor,

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1 in the disclosures, no opinions regarding NEPA.

2 THE COURT: Well, this is rebuttal, though. I'll
3 overrule the objection.

4 MR. BAIR: Thank you, Your Honor.

5 THE WITNESS: Could you restate the question now?

6 BY MR. BAIR:

7 Q. Do you believe that the outcome you just described
8 ecologically would be consistent with federal agencies' NEPA
9 obligations?

10 A. I think it would be a difficult and a very
11 challenging argument to make given the multiple objectives
12 that lands are managed for because the fuel treatment
13 prescription here is quite specific to hazard fuel reduction
14 and changes in behavior that are temporary and that would
15 conflict with a lot of other management objectives. And I
16 think that through the NEPA process, through the appeals and
17 the review by the interested public, I think you would have a
18 great deal of litigation.

19 Q. Okay. You just mentioned multiple objectives. Do
20 you believe that this outcome would be consistent with
21 multiple-use policies?

22 A. In general, no.

23 Q. And do you believe that it would be consistent with
24 wilderness management policies inside the Park?

25 A. Well, definitely no.

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1 Q. Okay. Now, yesterday, Mr. Graybill asked you a
2 series of hypothetical questions about a one-mile-wide
3 clearcut. Let's end by talking about that a little. Mr.
4 Schulte didn't propose a clearcut in any of his reports, did
5 he?

6 A. No.

7 Q. Okay. During his testimony last week, did you hear
8 him propose a clearcut?

9 A. I don't think so.

10 Q. Would a one-mile-wide clearcut along the boundary
11 between Glacier National Park and the Blackfeet Reservation
12 be consistent with the ecology of these forests?

13 A. A one-mile-wide clearcut? Well, more consistent,
14 yes, it would actually be consistent with the ecological
15 dynamics, as long as there was no attempt to maintain the
16 fuel conditions in there. The initial cutting and
17 regeneration would be consistent with the fire that just
18 happened.

19 Q. And what would happen during the course of that
20 regeneration?

21 A. Well, initially, it would be grass and shrub-
22 dominated, and that would diminish the fuel treatment effect
23 very rapidly within a few years. Tree reproduction would
24 begin developing in there, and after a period of a decade or
25 two, a sapling-size stand would be developed, and it would be

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1 capable of carrying crown fire again.

2 Q. So, have you specifically studied whether a one-
3 mile-wide fuel break would have been effective -- a one-mile-
4 wide clearcut fuel break would have been effective in
5 stopping the Red Eagle Fire with the aid of suppression
6 forces?

7 A. I didn't examine that case, no.

8 Q. Okay. Do you believe a prudent forest manager
9 would have implemented a one-mile-wide clearcut along the
10 boundary between the Park and Reservation?

11 A. I don't think so without foreknowledge of a
12 specific fire event that they were protecting from because
13 the benefits to the fuel hazard reduction would lapse quick
14 enough that the fuel break would be ineffective in a short
15 period of time against some unknown future peril.

16 Q. Did those forest managers have that specific
17 foreknowledge?

18 A. I don't think so.

19 Q. Could any forest manager ever have that specific
20 foreknowledge?

21 A. I have never met one, no.

22 MR. BAIR: No more questions. Thank you.

23 THE COURT: Okay. Any recross?

24 MR. GRAYBILL: Yes.

25 RECROSS EXAMINATION

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1 BY MR. GRAYBILL:

2 Q. Dr. Finney, forest managers have known for decades
3 that large, intense, fast-moving fires can move across the
4 landscape; isn't that right?

5 A. Yes.

6 Q. And that there can be crowning behavior with those
7 fires?

8 A. Yes.

9 Q. And spotting behavior with those fires?

10 A. Yes.

11 Q. And forest managers for decades have had to try to
12 prepare their forests to withstand if possible the effects --
13 the damaging effects of those fires, wouldn't you agree?

14 A. It's so site-specific. I would say that many
15 forest managers do not prepare for that kind of event.

16 Q. Well, my question is that forest managers who are
17 charged with the responsibility of protecting a forest from
18 wildland fire have to manage as best they can to protect the
19 forest against fire. Isn't that true?

20 A. They follow the standards and guidelines in the
21 state or on the ground that they're working on, but we have
22 many examples here from Western Montana where timber
23 companies have followed all the required guidelines and in
24 checkerboard units, alternating every other section between
25 private and federal land, there's been no effect of their

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1 harvesting operations on the movement of large fires.

2 So -- well, I'll just leave it at that.

3 Q. Okay. Well, but the fact is that with regard to
4 managing a commercial forest, there is an effort by forest
5 managers to protect forests from large, intense fires; isn't
6 that true?

7 A. Yes, usually through suppression activities.

8 Q. That's part of responsible management, isn't that
9 correct?

10 A. Through suppression activities and following the
11 standards for activity fuel disposal.

12 Q. You said that a harvest and then prescribed burn
13 would be ecologically appropriate for the forest types that
14 we're talking about in this case; is that right?

15 A. Yes.

16 Q. Okay. And, so, a manager managing the Blackfeet
17 Forest for sustained yield management would want to know and
18 plan for -- you know, for protecting the forest from fire in
19 that way, if the -- if that method were, in fact, effective;
20 isn't that right?

21 A. Perhaps.

22 Q. And, in fact, at least the forest manager would
23 want to communicate to the beneficial owner of the forest
24 that that is a means of managing this forest -- harvest and
25 burn -- in order to obtain some value from the forest before

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1 a large fire consumes it. Isn't that true?

2 A. There's a number of factors there in your
3 question. The standard practice in these kinds of forest
4 types is for -- is clear-felling, essentially a clearcut, and
5 then prescribed burning. A lot of times, the burning isn't
6 done. Slash piles are created and they're burned as piles
7 rather than a broadcast burn, okay, and that's for practical
8 uses.

9 Q. What I'm getting at, though, is that you have
10 testified that that is ecologically appropriate for these
11 forests, that kind of treatment.

12 A. Yes.

13 Q. And, so, the beneficial owner would need to know
14 that to make intelligent decisions about how the forest
15 should be managed. Isn't that true?

16 A. I suppose.

17 Q. I want to talk about mechanical treatments for a
18 minute. It is possible to mechanically treat a forest to
19 convert it to an FM 8 by removing small understory trees, by
20 removing dead-down material; isn't that true?

21 A. It depends on the forest type. It really depends.

22 Q. Well, are you saying that in the forest types that
23 we're talking about in this case it's not possible to go in
24 and actually remove understory trees and remove the dead-down
25 material on the forest floor, the large, dead-down material

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1 on the forest floor that can be piled and burned?

2 A. That can be accomplished, but the consequence is
3 not a Fuel Model 8.

4 Q. Okay. All right, I'm going to get to that in a
5 minute. I just want to establish that, in fact, through
6 mechanical means or harvesting, which is a mechanical
7 means --

8 A. Mm-hmm.

9 Q. -- it is possible to do the kinds of things that
10 would substantially reduce fuel loads in the forest; isn't
11 that true?

12 A. You can reduce loading, yes. You may not change
13 hazard, but --

14 Q. And your point is that once that is accomplished,
15 you don't have a Fuel Model 8 forest, you have something
16 else. Is that your testimony?

17 A. In this area, that's correct.

18 Q. And that's because when you engage in the
19 mechanical fuel treatments that I've just discussed, you
20 cause generation of -- regeneration of grasses and shrubs; is
21 that correct?

22 A. Yes.

23 Q. But you have testified in this case that it is
24 possible to go back in and mechanically treat the shrubs,
25 isn't that -- or the brush; isn't that true?

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1 A. I think we were talking about like a shrub field.
2 You could mow it or use a mastication machine or something
3 like that, but if it's within a forest condition, how are you
4 supposed to go remove those shrubs or grasses without using
5 prescribed fire? I don't know of a technique where that's
6 possible over broad areas.

7 Q. Well, you can remove shrubs through means other
8 than prescribed fire through mechanical means, can't you? I
9 mean, it's possible to take a small chainsaw and remove
10 shrubbery, isn't it, particularly if shrubbery is not a
11 dominant species in the landscape, correct?

12 MR. BAIR: Objection, Your Honor. Compound.

13 THE COURT: Yeah, well, let's break it up, if you
14 can.

15 MR. GRAYBILL: Okay.

16 BY MR. GRAYBILL:

17 Q. So, let's talk about removing shrubbery. First of
18 all, it's clear from the fire summary that what was there in
19 these treatment areas was Fuel Model 5 which was a shrub
20 layer that actually minimized the spread of fire according to
21 the people who fought the fire, correct?

22 A. That's what they said.

23 Q. Okay. And, so, if it actually operated to minimize
24 fire spread, you potentially wouldn't want to remove that
25 shrubbery, correct?

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1 A. I think we're reading a lot more into what the
2 closeout summary intended than is possible.

3 Q. Well, but Dr. Anderson himself says with regard to
4 Fuel Model 5 that it is not as combustible as other brush
5 layers, as other brush fuel models, correct?

6 A. Yes, but -- and it applies to sagebrush, and
7 sagebrush fires can spread at very rapid rates, as well as in
8 other kinds of low shrub ecosystems. So, Fuel Model 5 is by
9 no means a timid model.

10 Q. Okay. It's clear that the vast majority of what
11 we're talking about in terms of cover type in the treatment
12 areas is timber at Fuel Model 10, correct?

13 A. Yes.

14 Q. And, so, we're not talking about removing a vast
15 landscape -- shrubbery from a vast landscape; we're talking
16 about pockets of shrubbery. Isn't that true?

17 A. No.

18 Q. Well, did you quantify how much Fuel Model -- a
19 shrub fuel model or brush fuel model existed in the treatment
20 areas?

21 A. So, I think we're getting confused here. I'm
22 talking about brush recovery in places that are now Fuel
23 Model 10. There would be accelerated development of the
24 resprouting brush in there. And if you look at the
25 definition in Anderson's own paper of Fuel Model 10, it

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1 includes other material besides just large dead-and-down
2 woody logs.

3 Q. Okay. So, just so we can break it up, the initial
4 conversation to a fuel model type -- to a forest that mimics
5 a Fuel Model 8-type forest, could, in fact, include
6 mechanized removal of brush and, in fact, in this particular
7 forest, there's not all that much brush. It's mostly Fuel
8 Model 10 timber, correct?

9 A. At the moment, that's right.

10 Q. Okay. And, so, you're not saying that the initial
11 treatment action is not feasible. Correct?

12 A. It can be mechanically thinned, and mechanical
13 activities can take place within -- within the fuel break.
14 Yes, they can.

15 Q. Your concern is that there would be regeneration
16 after it's opened up, correct?

17 A. Yes, that's correct.

18 Q. Well, isn't it true, sir, that if the responsible
19 forest manager is tasked to protect this forest, it is
20 absolutely possible to go back in to these large treatment
21 areas and as the brush regenerates treat it in some form,
22 other than with prescribed fire?

23 A. Everything's possible; it's not practical.

24 Q. Okay. You talked about Cases 5 and 6 as being the
25 ones that you believe would most closely resemble what would

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1 actually happen with a large fire like the Red Eagle Fire,
2 correct?

3 A. Yes.

4 Q. And isn't it true, sir, that in both of those
5 models you include fuel cover types other than FM 8 that are
6 not treated?

7 A. That's true.

8 Q. You were asked some questions about Defendant's
9 Exhibit 187. And you were first asked about -- do you still
10 have that in front of you?

11 A. Yes.

12 Q. On the first page, you were asked about this
13 statement, "Large fires burning under extreme conditions of
14 high winds and low humidity are difficult, if not impossible,
15 to suppress." Do you remember that testimony?

16 A. Yes.

17 Q. It's easier to suppress -- first of all, that
18 statement doesn't say that they are impossible to suppress,
19 correct? It says they are difficult.

20 A. Yes.

21 Q. If not impossible, correct.

22 A. Right, once the weather changes, then suppression
23 activities are usually possible.

24 Q. Would you agree that they are easier to suppress if
25 they encounter fuel breaks or landscape-area fuel reduction

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1 treatments?

2 A. The possibility is there.

3 Q. And if you turn to the conclusions, which is three
4 pages from the end, you state that "We suggest that problems
5 to society posed by wildland fires are analogous to those of
6 traffic accidents." Do you see that?

7 A. Yes.

8 Q. And traffic accidents can't be stopped either by
9 increasing the police force or reducing the speed limits.
10 And then a little farther down, you say, "Likewise, wildland
11 fires can't be stopped." You then go on to say, "The
12 challenge for fire management is to reorient the focus of
13 efforts toward limiting the undesirable effects of fires on
14 ecosystems and human development, not stopping fires."

15 And a little bit below that, you say,
16 "Sustainability of wildland ecosystems can be accomplished by
17 managing fuels and landscape pattern to change fire
18 behavior." And do you still agree with that statement, sir?

19 A. Yes.

20 MR. GRAYBILL: That's all I have, Your Honor.

21 THE COURT: All right. Dr. Finney, thank you very
22 much for your testimony.

23 THE WITNESS: Thank you, Your Honor.

24 THE COURT: You are excused.

25 THE WITNESS: Thank you.

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1 MR. BAIR: Your Honor, one quick housekeeping
2 matter, if I may. We wish to provide Dr. Finney's full
3 PowerPoint presentation as Defendant's Demonstrative 3, and I
4 have printed copies here.

5 THE COURT: All right.

6 MR. BAIR: May I approach?

7 THE COURT: Yes.

8 MR. BAIR: One other minor housekeeping matter,
9 Your Honor. We also have exhibit stickers for Defendant's
10 Exhibit 186 and 187. I'm happy to provide those at the break
11 or whatever --

12 THE COURT: All right, that will be fine.

13 MR. BAIR: Thank you.

14 (Defendant Demonstrative Exhibit Number 3 was
15 marked for identification.)

16 MS. DRAPER: The United States calls Dr. Terry
17 Droessler.

18 THE COURT: All right.

19 Good morning, sir.

20 THE WITNESS: Good morning.

21 Whereupon,

22 TERRY DONALD DROESSLER, Ph.D.
23 called as a witness, having been first duly sworn, was
24 examined and testified as follows:

25 DIRECT EXAMINATION

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1 BY MS. DRAPER:
2 Q. Good morning, Dr. Droessler.
3 A. Good morning.
4 Q. Would you please state your full name for the
5 record.
6 A. Terry Donald Droessler.
7 Q. And what is your profession?
8 A. I am a forest biometrician.
9 Q. And what is the name of your firm?
10 A. My firm is Forest Analytics, LLC.
11 Q. And you provided a copy of your resume with your
12 expert report; is that correct?
13 A. That's correct.
14 Q. And I believe that has been marked and admitted as
15 Defendant's Exhibit 137. You don't have any way of knowing
16 if that's correct. And I believe your resume appears as
17 Appendix C of your report; is that correct?
18 A. That's my recollection.
19 Q. Is the resume provided with your report an accurate
20 and up-to-date copy, so far as you recall?
21 A. It's up-to-date as of the date of that document.
22 Q. Would you please list the degrees that you've
23 earned and the universities you attended?
24 A. I began my college education at the University of
25 Wisconsin Stevens Point in the College of Natural Resources.

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1 I spent two years as an undergrad there and then transferred
2 to the University of Wisconsin in Madison, also in the
3 Department of Forestry at the time. I obtained a bachelor's
4 of science in natural resources, forestry, from the
5 University of Wisconsin Madison.

6 I went on to get a master's degree in forest
7 biometrics from the University of Wisconsin Madison and then
8 went to the University of Minnesota and obtained a Ph.D. in
9 forest biometrics.

10 Q. And without getting into opinions, can you briefly
11 explain what forest biometrics is?

12 A. The word "biometrics" literally translates to the
13 measurement of life. And, so, forest biometrics is the
14 measurement of forest components, such as trees.

15 Q. Let's turn back to your career path and
16 professional experience. Since earning your Ph.D., could you
17 briefly walk us through the forest biometrician positions
18 that you've held? Perhaps you could start with the earliest
19 and proceed to the most recent and maybe give us a general
20 idea of the kinds of forest projects you worked on at your
21 different positions.

22 A. Sure. I began with a post-doctorate position with
23 the Forest Service Northeast Forest Experiment Station in
24 Orono, Maine. In that position, the work focused on the
25 impacts of acid rain on the growth and yield of the spruce

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1 fir forest in that region of the country.

2 Okay, the next job was with the Environmental
3 Protection Agency laboratory in Corvallis, Oregon. I began
4 my work there looking at the -- extending the impacts of acid
5 rain on the growth and yield of forests on national scales.
6 That work eventually transitioned into the impacts of global
7 change on forest growth and yield on a national and even
8 global scales.

9 After my EPA stint, I worked for the consulting
10 firm Mason, Bruce & Girard, Inc. in Portland, Oregon. I was
11 hired to do forest biometrics work there, which involved
12 designing and analyzing forest inventory information, among a
13 wide variety of projects, but most were related to forest
14 inventory or their analysis.

15 After Mason, Bruce & Girard, I became a partner
16 with several other folks in a consulting firm in Corvallis,
17 Oregon called Duck Creek Associates. I was the forest
18 biometrician partner in that firm, and my work continued with
19 forest inventory-related work, forest inventory analysis,
20 statistical analysis, a rather wide variety of work, all
21 involving forest inventory.

22 After Duck Creek Associates, I formed my own
23 company. This would be 2005, Forest Analytics, LLC, as a
24 sole proprietor. And my clientele has remained fairly
25 consistent over the length of time I've been in the Pacific

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1 Northwest. I work for -- I do projects for a wide variety of
2 entities, from individual tree farm and woodland owners,
3 neighbors, small, medium, to large-sized timber companies,
4 federal agencies, and the United States Department of
5 Justice.

6 Q. And, Dr. Droessler, you may have mentioned this,
7 but did you also work at one point for Cavenham Forest
8 Industries?

9 A. I did have a one-year job with Cavenham Forest
10 Industries, and that was cut short by a hostile takeover,
11 buyout, the company sold. In that capacity, I did forest
12 biometrics and -- in addition to GIS work for them.

13 Q. In describing your professional experience, you've
14 used a few terms perhaps we should define. Let's quickly
15 take them one by one. Without offering an opinion, what is a
16 forest growth and yield model?

17 A. A forest growth and yield model is simplistically a
18 way to simulate how trees grow using computers.

19 Q. And with the same criteria in mind, what is a
20 silvicultural scenario?

21 A. Silvicultural scenarios are the way that forest
22 managers attempt to achieve particular goals on their
23 property.

24 Q. And you mentioned forest inventory as one of your
25 specialties. What is a forest inventory?

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1 A. Forest inventory simply and most -- in most cases
2 for me in particular involves an inventory of the trees that
3 are on a property.

4 Q. Please just briefly describe your professional
5 experience with statistical sampling.

6 A. Statistical sampling is a necessary requirement in
7 both the development of a forest inventory in developing
8 sampling strategies and also in the review of existing forest
9 inventory work.

10 Q. Do you have any experience reviewing inventory work
11 prepared by others?

12 A. Yes. I'm called upon on a regular basis and really
13 throughout my career to review existing forest inventories.

14 Q. Do you have any experience calculating confidence
15 intervals?

16 A. Yes. Confidence intervals provide an estimate of
17 the variability in the value of interest, typically an
18 average or a total.

19 Q. And what kinds of projects have you worked on that
20 involved calculating confidence intervals?

21 A. I've had two very recent projects, both with the
22 same client, that required me to come up with the inventory
23 design, subcontract out the field work to cruisers and
24 compile the results, determine the total volume, and provide
25 that confidence interval or measure of variability with it.

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1 Q. Dr. Droessler, have you worked on any projects
2 involving Indian forestlands?

3 A. Yes. I've had a long tenure in working with Indian
4 country.

5 Q. What kinds of projects have you worked on that
6 involved Indian forestlands?

7 A. I've been asked to take existing CFI -- continuous
8 forest inventory -- plot data and develop a timber inventory
9 database for the tribe. I've been asked to use inventory to
10 assist them in developing forest management plans. And
11 develop harvest schedules.

12 Q. Which Indian tribes have retained your services?

13 A. I've worked for the Confederated Tribes of the
14 Coos, Lower Umpqua and Siuslaw in Oregon; the Coquille Tribe
15 in Oregon; the Cow Creek Tribe in Oregon; the Warm Springs
16 Tribe in Oregon; a couple tribes in Washington, the Quinalt
17 Indian Tribe and the Colville Tribe. I've worked for First
18 Nations Tribe in British Columbia. That's what I recall.

19 Q. Thank you. What regions of the United States have
20 you primarily worked in?

21 A. My most recent work really for about the past 28
22 years has been in the Pacific Northwest, so it's primarily
23 focused on work in British Columbia, Washington, Oregon,
24 Northern California, and extending a bit into the Inland
25 Empire region, but primarily the Pacific Northwest.

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1 Q. Have you worked on any forest projects outside the
2 Continental United States?

3 A. Yes. I have worked -- had projects in the Russian
4 Federation, Sakhalin Island specifically; in Canada, in
5 British Columbia; and also in Brazil.

6 Q. Have you led any training sessions related to
7 forest biometrics?

8 A. Yes. Part of my business is routinely to provide
9 training for individuals interested in learning how to
10 develop inventory or use inventory software. So, I provide
11 one-on-one or group training every year on a, you know, very
12 regular basis.

13 I also have developed specialty workshops, often
14 with colleagues, and last year I with two colleagues, two
15 forest biometricians, presented a two-day workshop in
16 Portland for about 75 folks on how to use growth and yield
17 models.

18 Q. Are you affiliated with any professional
19 organizations?

20 A. I'm a member of the Western Forest Mensurationists
21 or otherwise known as Western Forest Biometricians group, and
22 I'm a certified forester in the Society of American
23 Foresters.

24 Q. And you just mentioned you're a certified forester.
25 Are there any continuing education requirements associated

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1 with that certification?

2 A. Yes. There's -- basically, they specify a three-
3 year continuing education requirement that has to be met.
4 And, you know, I try and undertake that to basically do it on
5 an annual basis to make sure I get -- meet or certainly
6 exceed that three-year requirement.

7 MS. DRAPER: Your Honor, we would move to qualify
8 Dr. Droessler as an expert forest biometrician.

9 THE COURT: All right. Any voir dire?

10 MR. GRAYBILL: No objection.

11 THE COURT: All right. The Court will accept the
12 witness as an expert in forest -- whatever the noun is.

13 MS. DRAPER: Biometrics.

14 THE WITNESS: Biometrics.

15 MS. DRAPER: It's a long word.

16 BY MS. DRAPER:

17 Q. Dr. Droessler, let's start with a few basic
18 background concepts. What are the basic tools a forest
19 biometrician uses to measure forest inventory?

20 A. The basic tools are field measurements, and those
21 field measurements involve tree diameters, the measurement of
22 the diameter of the tree at four and a half feet above the
23 ground and total tree heights, perhaps measurement of how
24 much taper there is in a tree, those sorts of measurements.
25 The ultimate goal, of course, is to estimate volume in the

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1 tree.

2 Q. And I assume you're speaking of timber volume.

3 A. Correct.

4 Q. What was your assignment in this case?

5 A. I had two assignments in the case. First, I was
6 asked to develop a total net board foot volume of commercial
7 timber burned within the Red Eagle Fire perimeter; and
8 secondly to provide an estimate of the net board feet per
9 acre at rotation age for the forest cover types that occur
10 within the Red Eagle Fire perimeter.

11 Q. Dr. Droessler, before we continue, we've heard
12 other testimony in this trial referring to commercial timber.
13 Are merchantable and commercial timber essentially
14 interchangeable terms for purposes of discussing your
15 analysis?

16 A. Mostly, yes.

17 Q. Is there a distinction we should be concerned about
18 here?

19 A. Not in my testimony.

20 Q. Did you provide a report in this case on your
21 analysis of the two issues you've just described for us?

22 A. I did.

23 Q. And are we seeing on the monitor as -- this would
24 be the title page from your report; is that correct?

25 A. That's correct.

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1 Q. And I believe this has been admitted as Defendant's
2 Exhibit Number 137. Before we turn further into the
3 specifics of your analysis, let's briefly discuss the general
4 information you considered. Did you have an opportunity to
5 inspect the Blackfeet Tribal Forest after the Red Eagle Fire?

6 A. Yes. I spent several days touring the burn area
7 and adjacent areas. That would have been in September of
8 2014.

9 Q. And how did your observations factor into your
10 analysis, if at all?

11 A. They certainly factor in throughout. In sort of
12 reviewing the data that was available to me, I had mental
13 pictures of having been in specific locations. And, so,
14 for example, if I had plot data that I knew came from a
15 specific area, I had -- I had been in that area, and I cross-
16 checked -- basically a mental cross-check between what I was
17 seeing in the data to make sure it made sense based on what I
18 saw in the field.

19 Q. We've been speaking generally about the two major
20 issues you analyzed. Let's turn to specifically now your
21 commercial timber volume estimate for the Red Eagle Fire.
22 Could you start by giving us a general overview of the steps
23 you followed in estimating commercial timber volume within
24 the fire perimeter?

25 A. Yeah. The general steps were to first determine

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1 the total area that I was -- that I needed to work with,
2 which would have been the total area of commercial timber
3 burned within the Red Eagle Fire perimeter. The second step
4 was to estimate volume for that area.

5 Q. Volume for the acreage that you'd finished
6 calculating; is that correct?

7 A. That's correct.

8 Q. Okay, let's take each of those steps in the order
9 that you just listed them. What was your starting point?
10 And I'll refer your attention to slide number 2 on the
11 screen. I believe this is table -- can you recognize this as
12 Table 1 from your report?

13 A. Yes.

14 Q. Okay. And of the land -- of the land category
15 acreages set out in Table 1, which one was significant for
16 your purposes?

17 A. Yeah, I focused entirely on the fourth row down,
18 which is labeled Commercial timber - Burned, and it shows as
19 12,502.3 acres.

20 Q. Once you -- and is this information -- where did
21 you obtain this information that appears in Table 1?

22 A. Table 1 came from Mr. Nelstead's document.

23 Q. And that would be the Mr. Nelstead who testified
24 earlier in the trial, I take it.

25 A. Correct.

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1 Q. Once you had Mr. Nelstead's 12,502.3 acres for
2 commercial timber burned, did you make any adjustments to the
3 acreage calculation?

4 A. Yes. There were several adjustments to that, but
5 that was my starting point.

6 Q. What was the first adjustment you made to the
7 12,000-acre figure?

8 A. The first adjustment was to --

9 Q. If I could refer your attention to Figure 1. I'm
10 asking about the -- did you make any adjustments with respect
11 to the acreage that was within the perimeter?

12 A. I made no adjustments to the acres that were within
13 the perimeter, except I focused on the burned area in that
14 Table 1, right. So, you know, what we're looking at is a --
15 the red outline is the revised fire perimeter from Mr.
16 Nelstead's work. There are also -- show some small islands
17 within that perimeter that were unburned areas, which, of
18 course, are not included in that 12,500.3-acre estimate.

19 Q. Okay. And, then, from the area we're looking at --
20 and we might want to go to the next slide. From the area we
21 are looking at now, did you exclude any land -- any areas as
22 you went to the next step in your analysis?

23 A. Yeah. My next step, I was certainly aware of the
24 Fox Creek Fire reburn area. We visited that area in the
25 field, spent considerable time walking around it and

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1 discussing it, so I was -- I had a good mental image of what
2 that area looked like. And the relevance is that the 2002
3 Fox Creek Fire had burned this area, which is shown in a
4 crosshatch. Actually, the whole green-outline area is the
5 Fox Creek Fire, but the cross -- the green crosshatch is the
6 area of the Fox Creek Fire that the Red Eagle Fire then
7 reburned, and I'll refer to that or use the term "reburn
8 area" here. That reburn area, at most, could have contained
9 four-year-old seedlings at the time of the Red Eagle Fire.
10 So, I knew there was no volume in that area, no commercial
11 timber volume in that reburn area. That certainly gived with
12 what the mental image I had was, and also from looking at
13 data that was available from that area.

14 Q. And how many acres does that Fox Creek Fire reburn
15 area encompass?

16 A. My recollection, it was 1,625.7 acres, an estimate
17 from Mr. Nelstead.

18 Q. If I suggested your report said it was 1,627.7,
19 would that --

20 A. That...

21 Q. Thank you. And what was the source of your
22 information on the number of acres within the reburn area?

23 A. I received that acreage estimate from Mr. Nelstead.

24 Q. So, if I'm understanding you correctly, you then
25 from the initial figure, the 12,000-acre -- 12,500-acre

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1 figure that we looked at, you then subtracted out the 1,600-
2 acre figure that represented the Fox Creek reburn. Did you
3 subtract out any other acreages before you got to the -- to
4 calculating volume?

5 A. Yes. So, the Red Eagle Fire occurred in late July
6 of 2006, and I knew that the inventory data that was
7 available to work with was measured in 2004 and into 2005. I
8 was also aware that there had been harvesting that occurred
9 between the time of that inventory and the Red Eagle Fire, so
10 roughly two years of elapsed time. And, so, I asked Kevin
11 Nelstead for the acreage of the harvest units that had
12 occurred from 2004 until the time of the Red Eagle Fire. And
13 he provided a figure of 327.8 acres that had been harvested.

14 Now, there was a chance that a plot -- one of the
15 inventory plots I was working with would have fallen into
16 these harvest areas, so if the measurements were taken after
17 harvesting had begun, I could see that in the plot data. I
18 checked the plots, and in the vicinity of where these harvest
19 units were and there was no indication that they fell within
20 the harvest areas. So, I concluded that I needed to subtract
21 these harvest areas out to get to an inventory estimate at
22 the time of the Red Eagle Fire. And, so, I subtracted them
23 out, which resulted in a figure of 10,548.8 acres, which is
24 shown at the bottom of this summary.

25 Q. So, once you had that, the 10,548.8 acres shown on

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1 the bottom of your summary of opinions, taken from your
2 report, what was the next problem you set out to solve?

3 A. The next problem was obtaining a volume estimate
4 for those acres.

5 Q. Referring you to Figure 2 from your report, does
6 that map depict this -- can you walk us through the process
7 that you followed to determine volume on the estimated acres?

8 A. Yes. So, there was inventory data collected in
9 2004 and 2005, and it was well designed with known plot
10 locations. So, what Figure 2 shows -- oh, the numbers refer
11 to individual plot numbers, and the blue dots to the location
12 of those plots. And what -- my intent here was to identify
13 which plots fell within the Red Eagle Fire perimeter. And
14 it's that subset of plots then that I could begin to work
15 with to develop a volume estimate.

16 Q. Dr. Droessler, let's pause for a moment from your
17 step-by-step description and focus on some background
18 information. Other witnesses have mentioned CFI plots. As a
19 forest biometrician, could you help us understand what CFI
20 plots are?

21 A. A CFI inventory, again it stands for continuous
22 forest inventory, is an inventory commonly used in Indian
23 country. The Bureau of Indian Affairs has relied on it to
24 develop inventory estimates for many decades. So, it
25 basically defines a fixed radius circular plot that is one-

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1 fifth acre in size. And then they inventory the trees that
2 occur on that plot. Then there are specific things that they
3 are measuring on portions of the plot or the whole plot. And
4 it's all laid out in an inventory design document. And for
5 the Blackfeet in particular, I cite the inventory design
6 document in my list of citations.

7 Q. Are these CFI plots typically -- are they revisited
8 on any periodic basis?

9 A. Part of the word "continuous" refers -- or alludes
10 to any way that they attempt to remeasure them, approximately
11 every ten years. Okay, but this data set, these plots were
12 first installed in 2004 and 2005. So, there was just a
13 single measurement available.

14 Q. And what is this -- is there a standard protocol
15 for collecting information from a CFI plot?

16 A. Yes. And it's laid out in that inventory design
17 document. Procedures and methods are clearly stated.

18 Q. And, in general, are there standard protocols that
19 are similar for laying out -- for designing a CFI inventory
20 and laying out the plots?

21 A. The general concepts are transferrable, yes.

22 Q. Let's turn back to the point we left off in your
23 volume estimate analysis for this case. I believe the last
24 step you mentioned was you were obtaining the CFI plot data
25 from Mr. Nelstead. And how did you go about getting the plot

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1 data and were there any sources other than Mr. Nelstead?

2 A. Right. I obtained the inventory data, the plot
3 data, from the Bureau of Indian Affairs Bureau of Forest
4 Resource Planning Office in Lakewood, Colorado. They are
5 sort of the clearinghouse or the -- that's the wrong word to
6 use. They are the folks that provide resource planning to
7 the Bureau of Indian Affairs. And they maintain these CFI
8 inventory databases and compute inventory volumes, which
9 then, you know, are utilized in a wide variety of ways.

10 Q. What data did -- am I using the correct acronym --
11 I believe it's BOFRP.

12 A. BOFRP is the commonly used acronym for that group.

13 Q. What data did BOFRP provide to you?

14 A. They provided me an Access -- a Microsoft Access
15 database, which contained tables that contained the raw plot
16 data, the data -- the tree measurements that were collected
17 on each of these CFI plots. They also provided me software
18 that I could use directly with that database to compute
19 volumes.

20 Q. Once you had the CFI data, what was the next task
21 you set out to complete, and referring you again back to our
22 Figure 2, I believe, from your report?

23 A. Right. The next task was to identify which CFI
24 plots fell within that Red Eagle Fire perimeter. And I -- at
25 this scale, this figure alone, you can sit and count which

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1 ones show up or seem to show up. I took that a step farther.
2 Any plot that was at all close to the perimeter border I
3 asked Mr. Nelstead to provide a more detailed -- more
4 resolution, and the ultimate determination as to whether a
5 plot fell within the perimeter or not was whether the center
6 of the plot fell within the perimeter. If the center of the
7 plot fell within the perimeter, I counted it and used it.

8 Q. Referring again to Figure 2, how many CFI plots did
9 you ultimately conclude were within the Red Eagle Fire
10 perimeter?

11 A. There are a total of 41.

12 Q. Once you determined there were a total of 41 within
13 the perimeter, did you exclude any other CFI plots, for
14 example, how did you treat those that were within the reburn
15 area?

16 A. Right. That reburn area, again, since I had
17 visited it, I knew there was no commercial timber volume in
18 it. I then excluded the plots that fell within that reburn
19 area, first checking to make sure they showed that there were
20 no trees in that area. And, in fact, they did show that.
21 So, there were six plots that showed in that reburn area, and
22 I excluded those. So, 41 minus 6 results in 35 total plots.

23 Q. Once you had your 35 total plot figure, what was
24 the next step in your analysis with respect to the BOFRP
25 data?

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1 A. Right. The next step then was to use the BOFRP
2 software and calculate the average volume per acre from those
3 35 plots.

4 Q. So, referring you to Table 2, which I believe
5 appears on page 9 of your report, does this show -- does this
6 include the BOFRP data you were working with?

7 A. Right. This is a table exactly out of that
8 software run. So, the software produces this table, and I
9 simply copied it and put it into my report. There's really
10 only one number that was of interest to me here, and it's
11 under the Total Volume heading, so that first group of three
12 columns. And it's the third column, the board measure. And
13 what this number represents, I can't make it out clearly on
14 my screen here. I'd be guessing as to what that number is.

15 Q. I believe if we go to the next slide that the
16 number will be clearer.

17 A. Okay. What that number is, though, is the gross
18 volume from those plots, which is the total volume that fall
19 within the dimensions of the diameters and the heights.

20 Q. Dr. Droessler, how did you decide whether the BOFRP
21 data you were looking at was reliable?

22 A. The inventory field guide specified both the
23 measurements that were to be taken with followup checks of
24 all field people to make sure that they were conforming to
25 predetermined standards for those measurements. So, that

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1 procedure was followed.

2 Q. And did you receive from BOFRP only data for the 35
3 plots you were considering?

4 A. No. I received the whole CFI -- the inventory
5 database I received contained all of the CFI plot data.

6 Q. Once you were satisfied that the BOFRP data was
7 reliable, how did you use the data in your calculations?

8 A. Well, the first step was to determine this gross
9 board foot volume per acre figure, which I can read on there
10 now was 5,659.1 board feet per acre.

11 Q. And, Dr. Droessler, if I could just ask you, is
12 this a summary or this is basically an excerpt from your --
13 the calculations that appear in your report, is that correct?

14 A. Yes.

15 Q. Okay. And I'm sorry, please go ahead.

16 A. Okay. So, the first step was getting this gross
17 board foot volume per acre figure. And, again, gross is
18 simply the volume that shows or is within the dimensional
19 characteristics of the tree. But not all of that dimensional
20 volume is useable for a variety of reasons, one of which is
21 defect, and visible defect in particular, which you can think
22 about as a rot area. The person measuring the tree can see
23 these rot areas, and they make an estimate of how much of the
24 dimensional characteristics is not useable. Okay, so, I'll
25 call this visible defect. It's defect that you can see and

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1 estimate.

2 So, gross volume, but it's really net board foot
3 volume, which is gross net of defect. In this case, I've
4 talked about visible defect. The estimate for defect that I
5 used came from the 2007 Sawyer report, and --

6 Q. Dr. Droessler?

7 A. -- which was based on this CFI plot data, this
8 particular inventory, but it was Blackfoot-Forest-wide, not
9 just the Red Eagle Fire area.

10 Q. Okay.

11 A. That Sawyer report.

12 Q. Dr. Droessler, if I could pause you for a moment
13 and maybe take a couple steps back. I just want to make sure
14 we've defined all the terms we're using. We've been
15 routinely using the term "board feet." What does that term
16 actually mean?

17 A. Okay. A board foot is a dimensional -- literally a
18 board that is 1-inch thick, 12 inches wide, and 12 inches
19 long. That's at a rough-cut level.

20 Q. And is another way of describing or capturing the
21 concept of net volume, is it essentially the quantity of
22 timber that a buyer can saw into useable lumber and is
23 therefore willing to pay for?

24 A. That's a clearly -- it's what a buyer is willing to
25 pay for that is the estimate of interest here.

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1 THE COURT: Ms. Draper, let's take a lunch break at
2 this point.

3 MS. DRAPER: Certainly, Your Honor.

4 THE COURT: We'll resume at 1:30 p.m.

5 (Court in recess for lunch.)
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1 AFTERNOON SESSION

2 (1:31 p.m.)

3 THE COURT: You may be seated.

4 Ms. Draper, let's go ahead.

5 BY MS. DRAPER:

6 Q. Good afternoon, Dr. Droessler. When we paused for
7 lunch, I believe you were in the midst of explaining to us
8 you timber volume estimates. And as I recall, we were in the
9 process of discussing defect. Does defect vary by region,
10 location, or tree species?

11 A. Yes, certainly by all three.

12 Q. Is there a difference between visible defect and
13 total or overall defect?

14 A. Yes. There's a term commonly used called "hidden
15 defect," which is defect that occurs inside the tree, that
16 there are no external visible ways to discern. So, hidden
17 defect is another type of defect.

18 Q. Where did you obtain the data you used to account
19 for defect on the timber within the burn perimeter?

20 A. I ultimately went to the Sawyer report, which
21 reported a 5.6 percent defect was appropriate to apply to the
22 inventory.

23 Q. We heard reference to the Sawyer report earlier.
24 Is that the Sawyer 2007 report?

25 A. Correct.

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1 Q. What was the overall defect figure you actually
2 used to calculate net board feet per acre within the burn
3 perimeter?

4 A. I used 5.6 percent.

5 Q. And I believe we see on the screen your
6 calculations from page 9 of your report; is that correct?

7 A. Yes.

8 Q. Would you walk us through the calculations that you
9 took to get from gross board feet to net board feet?

10 A. Okay, in the top line, the 5,659.1 is the gross
11 board foot volume per acre, the average gross board foot
12 volume per acre from the 35 CFI plots. I multiply that by
13 .944, which is 5.6 percent defect, to obtain 5,342.2 net
14 board feet per acre. Okay, so, then the next step, skipping
15 down to the last line because I'm not interested in gross
16 board foot volume any longer, I have a net board foot volume,
17 and that is what I want to carry forward in calculations. I
18 multiply that net board foot volume per acre by the area
19 estimate of the commercial timber burned within the Red Eagle
20 Fire perimeter, which is a number we referred to earlier of
21 10,548.8 acres. And that multiplication results in 56
22 million -- 56.4 million net board foot total for the
23 commercial area burned in the Red Eagle Fire.

24 Q. And then, Dr. Droessler, once you had that 56.4
25 million board feet figure, did you make any adjustments to

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1 address the two-year gap between the 2004/2005 CFI inventory
2 and the July 2006 Red Eagle Fire?

3 A. Right. So, there are -- yes. There are
4 approximately two years in there. It's something more than
5 one year and something less than two years, but I decided to
6 simply apply a two-year growth estimate to it. So, I
7 obtained an estimate of board foot volume growth from the
8 BOFRP software for these 35 plots. That is standard output
9 that that software produces. That gave me the average board
10 foot per acre growth per year, and I expanded that to a total
11 to get the total growth and then multiplied by two to get two
12 years of growth. And it basically amounted to one-and-a-half
13 million board feet growth per year times two is 3 million
14 board feet, added to the 56.4 million comes up with 59.4
15 million.

16 Q. Okay. And the calculations you've just described,
17 is that what's appearing on the screen as I believe your
18 summary from your report; is that correct?

19 A. That's correct.

20 Q. So, recapping for a second, so I'm sure I'm
21 understanding you, the 59.4 million net board feet you
22 calculated represented the volume of commercial timber within
23 the Red Eagle Fire perimeter; is that accurate?

24 A. That's accurate.

25 Q. After you calculated net timber volume, Dr.

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1 Droessler, what further steps did you take to assess the
2 reliability of the CFI plot data that you used?

3 A. Okay. The 35 plots, clearly some of those plots
4 were from seedling/sapling areas; some of them were from old
5 timber areas; and some of them were from mature sawtimber
6 areas. So, I understood there was quite a bit of variability
7 between those plots. So, I felt it important to give some
8 estimate of the variability within that Red Eagle Fire
9 perimeter of the 35 plots that I was using.

10 And the way to do that, the way to present that, is
11 to calculate a confidence interval. So, I went ahead and
12 calculated a confidence interval for my total volume
13 estimate.

14 Q. If I could ask -- I apologize. I did not mean to
15 speak over you. If I could ask you to pause and define for
16 us what is a confidence interval.

17 A. Confidence interval, there's standard statistical
18 formula for calculating it, but basically simply it's a
19 measure of the amount of variability in the estimate that
20 you're looking at. And the estimate I'm interested in here
21 is the total net board foot volume burned within the
22 commercial area within the Red Eagle Fire perimeter. So, I
23 wanted to have an estimate of the variability that was in
24 that total volume estimate. So, that's what the confidence
25 interval provides.

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1 Q. And, so, if I can recap it and ask you to delve
2 just maybe one layer deeper, so when we're looking -- in this
3 specific instance when you're calculating the confidence
4 interval, what is it actually measuring the variability of?

5 A. It is measuring the variability between the 35
6 plots that I used in this analysis.

7 Q. To further explain how confidence intervals work,
8 perhaps you could explain this example. If every plot
9 sampled was 100 percent the same, exactly the same, what
10 would the confidence interval be?

11 A. Right, there would be zero variability, and the
12 confidence interval would be zero.

13 Q. And what did you calculate as the confidence
14 interval for the CFI plot sampling?

15 A. The confidence interval resulted in a figure of
16 plus or minus 33.5 percent, and that's 33.5 percent of the
17 59.4 million net board feet.

18 Q. And perhaps if you could give us an example, what
19 does the confidence interval signify, if you could maybe give
20 us an example of if there were 20 -- if we looked at 20
21 samples, what is this confidence interval telling you?

22 A. Yeah. If there were -- if 20 independent people
23 went out and put plots into this area, 35 plots, so 20
24 independent inventories, the 95 percent confidence interval
25 says you would expect 19 of the results of those inventories

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1 to fall within the plus or minus 33.5 percent confidence
2 range, and one of those inventory estimates to fall outside
3 of that confidence range.

4 Q. Anything else the confidence interval is telling
5 you about how representative or variable the CFI plots used
6 in the 2004/2005 CFI inventory actually were?

7 A. As I mentioned, some of these plots were
8 seedling/sapling -- from seedling/sapling areas; some were
9 from poletimber-size tree areas; and some were from a mature
10 sawtimber-size tree area, so I expected there to be a lot of
11 variability and a figure of plus or minus 33.5 percent
12 reflects that.

13 Q. Okay. So, is a fair way to summarize what you just
14 indicated the plots were highly variable but also
15 representative?

16 A. That's correct. Those plots provide an unbiased
17 estimate of the volume.

18 Q. And, finally, to close out our discussion on timber
19 volume estimate, based on all the factors you considered, is
20 your 56.4 million net board feet an estimate that's
21 sufficiently reliable in your opinion as a forest
22 biometrician?

23 A. It's the 59.4 is the figure to use.

24 Q. I apologize.

25 A. And, yes, that is a good estimate of the total

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1 volume in that Red Eagle Fire perimeter.

2 Q. Now, let's turn to the second major question you
3 address, which relates to your work on forest cover type
4 within the fire perimeter. Again, let's start by defining a
5 few of the terms we're going to use. What is forest typing?

6 A. Forest typing is essentially a way to code the
7 predominant species, the size class, and the density class of
8 an area in the forest.

9 Q. Why did you set out to assess forest cover type?

10 A. I was asked by Dr. Zhang, who was doing economic
11 analysis, that he needed to have an estimate of the net board
12 feet per acre at maturity for the various forest cover types
13 that existed pre-fire within the Red Eagle Fire perimeter.

14 Q. Basically, what was your objective in assessing
15 forest cover type?

16 A. The objective was to come up with an estimate of
17 net board foot volume per acre at maturity.

18 Q. Is that the same or different than you were
19 attempting to determine the volume of merchantable timber at
20 rotation age? Is that another way of stating the same thing?

21 A. I'm using the word "maturity" for rotation age
22 here, yes.

23 Q. What does -- in this context, then, what does
24 maturity or rotation age mean?

25 A. Rotation age is a concept that forest managers use

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1 to assign an age at which they believe an area is ready for
2 harvest.

3 Q. What did you determine the rotation age was for the
4 trees in the Blackfeet Tribal Forest?

5 A. I went to the forest management plan in existence
6 at the time of the Red Eagle Fire, and it showed two figures,
7 differentiated by predominant species. And one of those
8 figures was for lodgepole pine areas, and it had a rotation
9 age of 90 or reported a rotation age of 90. And the other
10 was for mixed conifer species, and they reported a rotation
11 age of 110 years.

12 Q. You just used the term "mixed conifer species."
13 How are you using that term?

14 A. I'm using it simply to relay there were multiple
15 conifer species in the area.

16 Q. You mentioned the forest management plan as your
17 source material for rotation age. Is the mixed conifer
18 description simply part of the information you derived from
19 the plan?

20 A. The term was used in that forest management plan,
21 yes.

22 Q. Are you using the mixed species descriptor for any
23 purpose other than as a component of looking at rotation age
24 to determine merchantable timber volume?

25 A. No other purpose.

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1 Q. Are you using that term in an ecological sense?

2 A. No.

3 Q. Are you offering any opinion at all about fire
4 ecology?

5 A. No.

6 Q. Are you offering any opinions at all about fire
7 behavior?

8 A. No.

9 Q. Referring you to your summary table that appears on
10 page 15 of your report, could you walk us through the steps
11 you took to determine forest cover type, perhaps starting
12 with the chart and explaining the data it displays?

13 A. Sure. This is a table -- I requested and received
14 from Mr. Nelstead a list of all of the forest cover types
15 that occurred within the Red Eagle Fire perimeter -- the
16 burned area within the Red Eagle Fire perimeter. And, so,
17 this first column is labeled Burn Area Forest Cover Type.
18 This is the cover type that's pre-fire. Okay?

19 The goal was then to get an estimate of the net
20 board feet per acre at rotation age for each of those cover
21 types. And the way I got that estimate of volume was to take
22 the CFI plot data, which also had a forest cover type code
23 associated with it, and attempt to match a mature CFI plot
24 for the burn area forest cover types. And, so, there are two
25 colors you see in that second column, Mature CFI Forest Cover

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1 Type. The green represents forest cover types which had a
2 matching CFI plot forest cover type within the Red Eagle Fire
3 burn area perimeter. The yellow means that there was a
4 matching CFI plot or plots outside of the Red Eagle Fire
5 perimeter.

6 Okay, I was using mature volume estimates at this
7 point. This has nothing to do with the inventory at the time
8 of the Red Eagle Fire.

9 Q. And to go back just one step, Dr. Droessler, I
10 believe you mentioned the data for this table, I believe you
11 mentioned came from Mr. Nelstead. Did some also come from
12 BOFRP, from the CFI plot data?

13 A. The CFI plot data, which I used to estimate volume,
14 yes. That whole inventory database of CFI plot data came
15 from BOFRP.

16 Q. Okay. And perhaps, Dr. Droessler, could you select
17 one of the rows listed there and just take us through quickly
18 an example of the matching process you've just been
19 describing for us?

20 A. Sure. Let's look at the second row. So, the burn
21 area forest cover type shown is code DS33, and that stands
22 for Douglas fir, spruce, size class three, which is small
23 sawtimber, and density class three, which is a medium/high
24 density. So, that's what that code refers to. For a
25 matching mature CFI forest cover type, I located one to

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1 several -- I don't know how many plots there were -- within
2 the Red Eagle Fire perimeter that had a code of DS32, so I
3 felt that was a good -- that those plots provided a good
4 estimate of the board foot volume at maturity or at rotation
5 age for that forest cover type -- burn area forest cover
6 type.

7 Q. And, Dr. Droessler, are the results of your forest
8 cover type shown on Table B2 of your report?

9 A. Yes. The last column there shows the net board
10 foot volume per acre estimate.

11 Q. Dr. Droessler, maybe I could ask you to walk us
12 through very briefly, what do each of the columns on Table B2
13 that we're now looking at, what do each of those columns
14 describe?

15 A. Okay, the first column is the burn area forest
16 cover type that we've been talking about. The second column
17 is an estimated stand age in 2006 at the time of the Red
18 Eagle Fire -- just prior to the Red Eagle Fire. That
19 estimate came from Mr. Nelstead. RA Type stands for rotation
20 age type, and it's -- the M refers to a mixed species. There
21 are -- there is also L further down in the table. That
22 refers to lodgepole. So, there were those two rotation age
23 types that we've talked about.

24 The years to rotation age is a simple calculation
25 of the rotation age for the type minus the stand age in 2006,

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1 so the very first line shows the years to rotation age of 100
2 because it's a mixed type and the rotation age is 110 and the
3 stand age in 2006 was age 10. So, simple subtraction.

4 The total acres was the acres of the specific
5 forest cover type in that line. And then a species code and
6 a net board feet per acre. These values came from the CFI
7 plot data.

8 Q. Okay. Dr. Droessler, we have illustrated on the
9 screen just the first page of your Table B2. And in its
10 entirety, it continues through page 28 of your report. Do
11 each of the successive pages basically show the same
12 categories of information you've just walked us through?

13 A. Correct. It just goes through the full list of
14 forest cover types.

15 Q. Once you compiled all this information on forest
16 cover type, what did you do with it?

17 A. I provided this information to Dr. Zhang for his
18 economic analyses.

19 Q. Switching topics now, Dr. Droessler, did you review
20 Mr. Long's initial report?

21 A. Yes, I did.

22 Q. And as -- is it correct that Mr. Long did
23 essentially two separate analyses? He calculated -- one, he
24 calculated timber volume within the fire perimeter, and then
25 as a separate task estimated the number of acres he

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1 recommended for thinning or planting?

2 A. There were several tasks that he addressed, but my
3 comments really focus on two of those areas.

4 Q. And which two of those areas did you focus on?

5 A. In general terms, his estimate of volume, and then
6 his estimate of condition class, and the condition class
7 refers to whether there was planting needed or whether
8 there'd be future thinning required.

9 Q. Let's focus first on Mr. Long's timber volume
10 estimates. What issues did you identify as problematic with
11 Mr. Long's approach?

12 A. I reviewed his poletimber volume estimate and his
13 sawtimber volume estimate, so both of those estimates I have
14 some commentary on.

15 Q. Let's proceed, and we'll kind of proceed in the
16 order you listed them. Initially, did you address those
17 issues in your rebuttal report, which has been admitted as
18 Defendant's Exhibit 142?

19 A. Yes, I did.

20 Q. Let's take -- I believe you just mentioned Mr.
21 Long's poletimber estimate. Let's take that estimate first.
22 What issues did you identify with Mr. Long's methods for
23 arriving at that estimate?

24 A. Okay. He -- Mr. Long used an estimate of 1,699 net
25 board feet per acre for poletimber stands, and it's a number

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1 that he pulled from the 2007 Sawyer report. In a close
2 reading of the Sawyer report, that poletimber volume estimate
3 has two major problems with it. First, it is an average
4 estimate from all the CFI plots, the few that are within the
5 Red Eagle Fire perimeter, but most of them outside of the Red
6 Eagle Fire perimeter. So, that's issue one.

7 Two, that estimate represents the average
8 poletimber volume per acre of poletimber-sized trees that
9 occur on seedling/sapling plots, that occur on poletimber
10 plots, and that occur on sawtimber plots. And that's an
11 issue because by including poletimber-sized trees on other
12 than poletimber plots, he's getting an underestimate of the
13 actual poletimber volume on poletimber plots.

14 Q. Anything else you would add in terms of why that
15 approach is problematic?

16 A. Well, it clearly dilutes the true value of the
17 poletimber volume.

18 Q. You also referred to issues with Mr. Long's
19 sawtimber estimate. What issues did you identify with the
20 sawtimber estimate?

21 A. Okay, the sawtimber estimate, he used -- he started
22 with a gross board foot volume estimate, again out of the
23 Sawyer report. And he pulled that estimate from a section of
24 the report that dealt with an allowable -- annual allowable
25 cut calculation. And in reviewing that part of the Sawyer

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1 report, that gross board foot volume estimate, which he
2 started with, I believe it was 9,192 gross board foot -- feet
3 per acre, that volume represents the volume of overmature
4 stands only, and not all sawtimber burned within the Red
5 Eagle Fire was overmature. Okay, so, that's one issue.

6 Ultimately, he needed to get to a net board foot
7 volume per acre estimate, and again, as part of that
8 allowable cut calculation, Sawyer reports he applied a 30
9 percent defect to that gross board foot volume per acre
10 estimate to derive a net board foot volume per acre estimate.
11 And that 30 percent defect, again, applies to overmature
12 stands only, and not all sawtimber burned within the Red
13 Eagle Fire was overmature.

14 Okay, so I believe that 30 percent defect estimate
15 is an overestimate.

16 Q. Did Mr. Long provide a confidence interval for his
17 timber volume estimates?

18 A. He did not.

19 Q. Is that problematic?

20 A. There's no way to understand the variability in his
21 total volume estimate without having a confidence interval.

22 Q. Is it standard practice to calculate a confidence
23 interval?

24 A. Yes, it is.

25 Q. What are the ramifications in terms of addressing

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1 or reviewing Mr. Long's timber volume estimates if no
2 confidence interval is provided?

3 A. There's just no way to understand the variability
4 that exists in his total volume estimate.

5 Q. Let's turn to Mr. Long's condition class estimates,
6 in which he estimates the acreage he believes will require
7 planting or thinning post-fire. What issues did you identify
8 with Mr. Long's condition class inventory and estimates?

9 A. Okay. Mr. Long designed this inventory, and any
10 time I review someone's inventory design, I keep in mind some
11 common elements that are important in inventory design. And
12 I'll just quickly run through these and then spend a little
13 bit more time on each one.

14 The first is the plot size that he chose to use.
15 He chose to use a hundred-acre plot size. The second is the
16 plot locations, and typically a systematic grid with a random
17 start is a good method, and, in fact, he did that. And it
18 provides a good level that the resulting volume estimate, or
19 in this case, tree count estimates, area estimates, are
20 unbiased. So, that's a good thing.

21 The sample size. I like to see a sample size, and
22 it's required of me in most inventories I work on to provide
23 a sample size that achieves a stated statistical goal. And
24 you can think about that stated statistical goal as a
25 confidence level that is less than some percentage. Okay,

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1 keep that in mind.

2 The fourth element is a well-documented inventory
3 design, along with well-documented field methods, and he did
4 have a general document, but very lacking in detail with
5 specific -- in specific areas.

6 For -- I look for predetermined standards that the
7 cruisers have to achieve, and that some percentage, generally
8 5 percent, of each field person's field work gets checked by
9 an independent cruiser. And a calculation is made as to
10 whether they achieved the standards or not and then what, if
11 any, corrective action is required, based on the results of
12 whether those standards were achieved or not.

13 And, finally, I like to see and am required to have
14 that each plot that is installed is monumented, which
15 generally means some semi-permanent location of the plot
16 center is placed in the field so that within some reasonable
17 period of time an independent cruiser can come out and locate
18 it. So, those are the general elements that I look for.

19 Even if GPS coordinates are provided for plot
20 center, they still have to be monumented because a GPS gets
21 you in a close vicinity, but you need to know exactly where
22 that plot center was.

23 Q. And, Dr. Droessler, before we continue, I think you
24 might have mentioned a term I don't know that we've defined
25 yet this afternoon. You mentioned check cruising. Can you

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1 tell us what that concept is?

2 A. Yes. Check cruising is a procedure used to ensure
3 that the data that was collected by the field people is
4 reliable. And I mentioned a little bit the way you do that
5 is to have predetermined standards for each of the
6 measurements being taken defined so the field person knows
7 what those standards are when they go out and that an
8 independent check cruiser, when they go out, they can either
9 verify exactly the measurements that were taken or come up
10 with independent measurements and then compare them to what
11 the original measurements were.

12 Q. So, if I'm understanding you, essentially it's a
13 second group of people or a second individual that goes out
14 independent of the first group who did the fieldwork to
15 basically do a quality control check?

16 A. Yes, that's correct.

17 Q. And now, Dr. Droessler, you've listed for us the
18 good design elements or how you would define a well-designed
19 inventory design. How does Mr. Long's inventory design
20 measure against those elements you've described for us?

21 A. Okay. So, regarding plot size, he used a 100-acre
22 plot size, and it simply is unprecedented in my review of
23 field operations and in my inventory design. I would say
24 it's more than 100 times larger than any plot size that I
25 would advise using or would certainly see in review of

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1 inventory designs.

2 Q. Do you recall, Dr. Droessler, what the plot size
3 was in the CFI plots for the 2004/2005 inventory?

4 A. The CFI plots were one-fifth acre in size.

5 Q. Is that closer to a standard size?

6 A. Closer, yes.

7 Q. And I'm sorry, I interrupted your discussion. I
8 believe you were taking us through the list. I believe you
9 discussed plot size. What about plot location?

10 A. Plot locations, he -- Mr. Long did lay out a
11 systematic grid of 25 plots, 25 of these 100-acre plots,
12 which is a good design, but there were no GPS coordinates
13 provided for plot centers, at least he did not report any GPS
14 coordinates for those plot centers. So, without that, you
15 have no way to go back and relocate that plot center.

16 Q. What issues, if any, did you see with the general
17 field methods?

18 A. The field methods, so, what the cruiser was asked
19 to do was to go out and locate the plot, however they did
20 that, and do a walk-around somewhere within the -- within the
21 100-acre circle. First, there is no way to replicate the
22 walk-around. We have no idea where they walked. During that
23 walk-around, they were asked to hand draw boundaries on a map
24 of the condition classes that they were encountering. And,
25 again, these condition classes are needs planting or will

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1 need thinning, and there were descriptions and various
2 classes that they were to look for and record. And in order
3 to help them decide which condition class an area fell in,
4 they carried with them a PVC pole for which they could lay it
5 on the ground and spin it around and -- excuse me -- count
6 the number of seedlings that occurred within that fixed area
7 to key them into the right condition class it should be coded
8 as.

9 Well, what I look for there is where did they take
10 these measurements, where did they lay that pole down, how
11 many places and where specifically did they do it so an
12 independent person could come out and replicate the
13 estimates, the measurements that they took. I did not see
14 individual estimates recorded. I have no -- there's no
15 record of the number of these little area PVC plots that they
16 took, or where they took them. It's not in the design
17 protocol, and it's not in the writeup.

18 The issue that comes up there is it raises a
19 question of bias in that if you don't have specific locations
20 that you can go back to, you cannot verify the counts that
21 were taken to support the condition class that was labeled
22 for that hand-drawn unit.

23 Q. And turning to that next item on your list, Dr.
24 Droessler, was there a confidence level specified?

25 A. There was no confidence level specified in his

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1 report.

2 Q. Were there any check cruising standards developed
3 or reported on?

4 A. No. There was no predetermined check cruising
5 standards mentioned in his report, and no check cruising was
6 done.

7 Q. And I believe you may have already addressed this
8 in your early response, but any issues with the plot centers
9 as they were described in Mr. Long's report?

10 A. The plot centers, to my knowledge, were not
11 monumented. At least there is no mention that they were
12 monumented. And, again, without GPS coordinate and without
13 monumentation, there is no way to come back and precisely
14 locate where they were.

15 Q. Do the deficiencies you've just been discussing
16 undermine the reliability of Mr. Long's results in your
17 opinion?

18 A. Yes. There are several issues that arise that
19 relate to a bias in the condition class selections recorded,
20 and no way to know the variability since there was no check
21 cruise results, and no way to go back and independently
22 verify.

23 Q. Overall, how would you characterize Mr. Long's
24 inventory design and sampling methods for his condition class
25 work?

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1 A. Overall, it was a poor design.

2 Q. In terms of whether it was subjective, objective,
3 do you have an opinion?

4 A. Yes. I would say it was subjective.

5 Q. According to the information Mr. Long provided in
6 his report, were there any quality control checks used to
7 ensure that the condition class estimates reported were
8 verifiable and accurate?

9 A. None that I could make out.

10 Q. What effect does the lack of quality control checks
11 have on Mr. Long's condition class estimates?

12 A. There's simply no way to judge the variability in
13 the estimates that you would expect.

14 Q. What effect does not following the standard
15 protocols that you've outlined for us in implementing cross-
16 checks have on the data collected or the reported
17 observations?

18 A. I simply couldn't trust the information from that
19 inventory.

20 Q. Dr. Droessler, is experience preparing forest
21 inventories a substitute for relying on standard sampling
22 protocols?

23 A. Experience is not a substitute for it. Experience
24 is very helpful in working through those design elements and
25 choosing the best methods and techniques and measurements to

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1 take.

2 Q. Is a forest biometrician's opinion an acceptable
3 substitute for following standard protocols to ensure that
4 the sampling was reliable?

5 A. No.

6 Q. In other words, if Mr. Long's opinion is that
7 standard protocols were not required because he is
8 experienced in preparing forest inventories, is that
9 sufficient assurance that his methods were reliable in your
10 opinion?

11 A. No.

12 Q. With your 28-plus years of experience as a forest
13 biometrician, would you have followed standard protocols in
14 installing the inventory that Mr. Long undertook?

15 A. If I designed the inventory, I would have followed
16 the standard elements that I've just talked about.

17 MS. DRAPER: I have nothing further, Your Honor.

18 THE COURT: All right.

19 Cross examination?

20 CROSS EXAMINATION

21 BY MR. GRAYBILL:

22 Q. Good afternoon, Mr. Droessler.

23 A. Good afternoon.

24 Q. My name is Ben Graybill. I represent the Blackfeet
25 Tribe in this case. So, you just testified that if you'd

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1 been asked to design a precommercial thinning and planting
2 inventory, you would have followed a different set of
3 standards than Mr. Long. Is that correct?

4 A. I wouldn't -- I would have followed the same
5 standards, the same elements, but I would have designed a
6 very different inventory.

7 Q. Okay. Were you asked to design a precommercial
8 thinning and planting inventory?

9 A. I was not.

10 Q. Are you aware of whether or not any precommercial
11 thinning and planting inventory was done in this case other
12 than Mr. Long's?

13 A. I am not.

14 Q. And, so, in fact, there is no data from any other
15 inventory to compare Mr. Long's to, correct?

16 A. That's correct.

17 Q. Okay. You are simply criticizing Mr. Long's
18 reliability based on looking at the design of his inventory,
19 correct?

20 A. Correct.

21 Q. Have you actually gone out in the field and
22 conducted inventories?

23 A. I have.

24 Q. Okay. Does that include a planting and thinning
25 inventory?

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1 A. Yes.

2 Q. Okay. And in this particular case, all Mr. Long
3 was doing essentially, and his crew essentially, was counting
4 trees in these plots to determine if planting was needed
5 because not enough trees were present, or thinning was needed
6 because too many trees were present. Isn't that true?

7 A. That's correct.

8 Q. That's about as simple an inventory as anybody
9 would have to design when it comes to forest metrics, isn't
10 that right?

11 A. There are all kinds of very simple inventories that
12 can be done.

13 Q. Counting trees is one of them.

14 A. Yes.

15 Q. Okay. The only other questions I have concern the
16 volume of net board feet of timber that you calculated in the
17 forest that burned in the Red Eagle Fire. And the obvious
18 is, first, that your estimate is larger than Mr. Long's
19 estimate. Yours is 59 million roughly board feet, and his is
20 a little under 42 million board feet, correct?

21 A. That sounds correct, yes.

22 Q. Okay. So, the thing that I'm interested in that
23 I'm wondering whether or not it accounts for the difference
24 is the two different defect rates that you each used. You
25 used a 5.6 percent defect rate, correct?

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1 A. That's correct.

2 Q. And that was the visible defect rate, is that
3 right?

4 A. It was the estimate that came out of the 2007
5 Sawyer report, and they used wording something like this was
6 the appropriate defect for the inventory.

7 Q. So, you don't know whether it was a scale defect or
8 the visual defect. You don't know what kind of defect rate
9 it was?

10 A. It was the defect estimate that they applied to the
11 CFI plot inventory.

12 Q. There are different kinds of defect rates, right?

13 A. There are, yes.

14 Q. Okay. One is a visual defect rate where you're
15 cruising through the forest and you can see the defect in the
16 timber and you can make an estimate. Is that a visual defect
17 rate?

18 A. Defect that you can see is visible defect, yes.

19 Q. There's another kind of defect rate called a scale
20 defect rate, where you're actually at the mill, and the mill
21 is telling you based on what it's seeing as it mills the
22 timber what the defect rate is, correct?

23 A. That's correct.

24 Q. Okay. So, let's go to -- and you don't have it in
25 front of you. Hopefully, you'll be able to see it on the

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1 screen. Plaintiff's Exhibit 65, page 58, it's 65-58. And
2 the only reason I'm on this page is to show you, sir, that
3 down at the bottom there's a heading called the Cut
4 Calculation. Do you see that?

5 A. I see it.

6 Q. All right. And then if you go just two pages
7 further, we're still talking about the cut calculation, and
8 we go to 65-60. And by the way, let me just step back. You
9 understand that this is the 2007 Blackfeet Forest inventory
10 that was prepared by Pete Sawyer.

11 A. Yes, I do.

12 Q. Okay. And, so, you go to the third paragraph on
13 65-60, and halfway down, Mr. Sawyer says, "If we harvest on a
14 100 year rotation as proposed, approximately 511 acres will
15 come under management each year. Total gross volume removed,
16 at 9,192 board feet per acre for 511 acres is nearly 4.7
17 million board feet."

18 And then he says, Using 1 defect factor based on
19 the inventory along with a known scaled defect of the Red
20 Eagle salvage sale is 30 percent, we end up with an IAC of 3-
21 point -- 32.8 or 3.3 million board feet net. Do you see
22 that?

23 A. I see that.

24 Q. So, when it comes to determining the cut
25 calculation, and you're going to know this answer, and I,

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1 frankly, don't know the answer, was Mr. Sawyer here using a
2 30 percent defect rate?

3 A. He did use the 30 percent defect rate.

4 Q. Okay. I'm just curious, why did you use the 5.6
5 defect rate when the Sawyer inventory used a 30 percent
6 defect rate for the cut calculation?

7 A. Because the cut calculation is an entirely
8 different exercise than working with inventory at a point
9 estimate in time.

10 Q. And how is that, sir?

11 A. Because it -- the cut calculation is dealing with
12 merchantable timber on out into the future, not what you
13 currently have.

14 Q. Okay.

15 A. And what was currently there is best estimated by
16 that 2004 CFI inventory.

17 Q. Okay. Even though he is using a defect rate that
18 is specific to the Red Eagle Fire salvage, with regard to the
19 cut calculation?

20 A. Yeah. The 30 percent is -- seems to be pulled out
21 of thin air in that part of the Sawyer report. I mean, it's
22 there, but -- and they say that it came from a combination of
23 inventory along with known scale defect from Red Eagle
24 salvage sales.

25 Q. Are you critical of Mr. Sawyer's reliability, as

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1 well, sir?

2 A. I'm saying this is an --

3 MS. DRAPER: Objection.

4 THE WITNESS: -- allowable cut calculation.

5 MR. GRAYBILL: That's all I have, Your Honor.

6 THE COURT: All right.

7 MS. DRAPER: Just a very few questions, Your Honor.

8 THE COURT: All right, redirect.

9 REDIRECT EXAMINATION

10 BY MS. DRAPER:

11 Q. Dr. Droessler, for comparison purposes, what would
12 an inventory system look like designed according to the
13 standard protocols for the exercise that Mr. Long undertook?

14 A. Okay, the condition class inventory?

15 Q. Yes.

16 A. I would use a much smaller plot size, something,
17 you know, in the neighborhood of a fiftieth of an acre, and I
18 would have a lot of plots. So, I would lay them out,
19 hundreds of plots using a systematic grid with a random
20 start, and that's what I would use. So, there would be tree
21 counts taken at each of those small plots -- a single tree
22 count. And then each of those plots represents some -- gets
23 expanded into the sum acres. Each plot, say, represents 10
24 acres or 20 acres or whatever it would end up to be based on
25 how many of those grid points or plots there were.

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1 Q. And, finally, Dr. Droessler, in your opinion, is
2 Mr. Long's planting and thinning estimate reliable?

3 A. I don't believe it is.

4 Q. And is that based on the factors you've already
5 discussed here this afternoon?

6 A. Yes.

7 MS. DRAPER: Nothing further, Your Honor.

8 THE COURT: All right. Anything further, Mr.
9 Graybill?

10 MR. GRAYBILL: Just a very brief couple of
11 questions.

12 THE COURT: Okay.

13 RECROSS EXAMINATION

14 BY MR. GRAYBILL:

15 Q. Mr. Droessler, Mr. Long's plot locations were
16 stated in his exhibits, correct?

17 A. They were shown in his exhibits.

18 Q. Well, I understand you testified that you couldn't
19 determine his plot centers, but you could determine where his
20 plots were, right?

21 A. A 100-acre plot shown on a map, you could probably
22 position yourself somewhere on that 100 acres, yes, from the
23 map.

24 Q. So, were you ever asked to go out and check the
25 reliability of Mr. Long's work?

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1 A. I was not.

2 MR. GRAYBILL: That's all I have, Your Honor.

3 THE COURT: All right.

4 Dr. Droessler, thank you very much for your
5 testimony. You may step down.

6 MR. BAIR: Your Honor, the United States calls Mr.
7 Roy Montgomery.

8 THE COURT: All right.

9 MR. BAIR: May I ask permission for Ms. Moore to
10 approach the witness with some exhibits, Your Honor?

11 THE COURT: Sure.

12 Good afternoon.

13 THE WITNESS: Good afternoon, Your Honor.

14 Whereupon,

15 ROY MONTGOMERY

16 called as a witness, having been first duly sworn, was
17 examined and testified as follows:

18 DIRECT EXAMINATION

19 BY MR. BAIR:

20 Q. Good afternoon, Mr. Montgomery.

21 A. Good afternoon.

22 Q. Ms. Moore just handed you three of Defendant's
23 exhibits, Numbers 135, 141, and 151. Are these the expert
24 reports you prepared in this case?

25 A. They look like it, yes.

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1 Q. Let's start off by talking about your
2 qualifications. Do those reports -- or at least your initial
3 report -- contain your resume?

4 A. Yes.

5 Q. And is that a full and complete copy of your
6 resume?

7 A. Yes, it is.

8 Q. Okay. Let's talk about your qualifications.

9 THE COURT: Mr. Bair, could you give me those
10 exhibit numbers once more?

11 MR. BAIR: Oh, my apologies, Your Honor. It's Mr.
12 Montgomery's three reports, Defendant's Exhibits 135, 141,
13 and 151.

14 THE COURT: Thank you.

15 MR. BAIR: My apologies, Your Honor.

16 BY MR. BAIR:

17 Q. Could you please tell me about your educational
18 experience, Mr. Montgomery?

19 A. I have a bachelor of science degree in forest
20 management from Oklahoma State University.

21 Q. After obtaining your bachelor's degree, did you
22 then enter service with the Federal Government?

23 A. Yes, I did.

24 Q. And specifically, did you then work for the Bureau
25 of Indian Affairs?

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1 A. Yes, I did.

2 Q. What -- I understand you held multiple positions
3 there, but overall, what years were you employed with the
4 Bureau of Indian Affairs?

5 A. I started to work with the Bureau of Indian Affairs
6 in 1962, and I continued to work with the Bureau of Indian
7 Affairs in several locations, out in New Mexico, Oregon,
8 Wyoming, and Montana, up until 1978.

9 Q. And in those approximately 16 years, what kinds of
10 positions did you hold?

11 A. I started out as a forester, worked -- most all my
12 work was fieldwork in forestry. And I -- in 1966, when I
13 moved to the Wind River Reservation in Wyoming, I became
14 agency forest manager. After about six years at the Wind
15 River Reservation, I transferred to the Flathead Reservation
16 as a fire management officer. After a couple of years, I
17 transferred into what was known then as the Billings Area
18 Office; it's now known as the Rocky Mountain Regional Office,
19 and I worked there for a period of years until 1978.

20 Q. And during that period, were you involved in land
21 management decisions?

22 A. I was involved in forestry management decisions,
23 yes.

24 Q. And were you also involved in designing and
25 implementing fuel treatments?

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1 A. I designed and implemented several fuel treatments
2 in some of those locations.

3 Q. After leaving the BIA, did you then enter service
4 with the U.S. Bureau of Land Management?

5 A. I did.

6 Q. And what years were you employed with BLM?

7 A. As I say, I transferred over in 1978, and I
8 continued with the Bureau of Land Management in Montana and a
9 couple of locations in Montana, transferring to Oregon in
10 1985, and into the Oregon State Office in 1988. And I
11 retired there in 1997.

12 Q. In total, what years were you employed by the BLM?

13 A. From 1978 until 1997.

14 Q. And continuously from the early 1960s through 1997,
15 you were employed by the United States Department of the
16 Interior; is that true?

17 A. That's correct.

18 Q. Let's talk about your BLM work in a little more
19 detail.

20 A. What kinds of positions did you hold with the
21 Bureau of Land Management?

22 A. Well, the first position I had was the state fire
23 management officer in Montana and it also included a district
24 in the Dakotas. I was reassigned to a resource area manager
25 job in Lewistown, Montana in 1980. That job is -- has

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1 responsibility for a division of a BLM district with
2 responsibilities for management of a multiple-use program
3 within that resource area.

4 Q. So, what did your typical duties involve in those
5 roles?

6 A. Starting with the state fire management officer?

7 Q. Please.

8 A. I had responsibility for oversight of all of the
9 fire management programs within -- I believe there was, as I
10 recall, four districts within Montana and the Dakotas at that
11 time. And that involved responsibility for fire preparedness
12 and the fire protection program, including suppression. It
13 included fuels management.

14 Q. And what did your duties involve once you moved to
15 the resource management officer roles?

16 A. That involved a multiple use program that included
17 a range program, recreation program, forestry, wildlife.
18 There was a minerals program within the district and a realty
19 program that I had responsibility for. And I -- although I
20 didn't have direct fire management responsibilities, I
21 provided oversight to a fire management staff that was
22 centralized within the district. I provided oversight for
23 those activities within my resource area.

24 Q. And, finally, what did your duties involve in your
25 role in the Oregon and Washington BLM state office?

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1 A. Okay, when I left Lewistown, Montana, I moved to
2 Roseburg, Oregon as a resource area manager there. I had the
3 same kinds of responsibilities with a different type of
4 program, different -- it was a multi-use program, but it was
5 heavily oriented toward forestry, forest management. And I
6 had responsibility for all the disciplines within my resource
7 area there, including forestry, the fuels management program,
8 wildlife, fisheries, recreation.

9 Q. And then you retired in 1997.

10 A. I retired in 1997.

11 Q. So during your roughly 35 years of employment with
12 the Department of the Interior, did you gain expertise in
13 forest management?

14 A. Yes, I did.

15 Q. Did you become familiar with Department of the
16 Interior policies?

17 A. Yes, I did, that was ever in effect at that time.

18 Q. Did you become familiar and gain expertise in fire
19 behavior?

20 A. Yes, I did.

21 Q. And did you gain expertise in the ecology of the
22 Northern Rockies?

23 A. I did while I was in Montana, yes.

24 Q. While you were employed with the Federal
25 Government, did you also serve in a wildland firefighting

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1 role?

2 A. Yes, I did. That was one of the things that you
3 were expected to participate in with the Bureau of Indian
4 Affairs as a forester. So, I got my training and
5 firefighting experience initiated and progressed up through
6 the ranks and became qualified at various positions.

7 Q. And let's talk about those positions. Did you ever
8 become qualified as a commander of incident management teams?

9 A. Yes, I became qualified as a Type 2 incident
10 commander and held those qualifications for approximately 12
11 years. And then I became qualified as a Type 1 incident
12 commander and had held those qualifications for perhaps 15
13 years.

14 Q. Have you continued working since you retired from
15 federal service?

16 A. Yes, I have.

17 Q. How so?

18 A. Well, in the year 2000, I started my own consulting
19 business dealing with wildland fire management issues.

20 Q. And what sort of work do you do in that consulting
21 business?

22 A. Well, I have done a variety of work. Initially, I
23 was able to get contracts with the Forest Service and BLM to
24 do various kinds of fire management work for them in the area
25 of program analysis, evaluations, leading test forces to

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1 address certain issues that they wanted addressed. And then
2 I also participated in wildland fire suppression, not in a
3 tactical sense, but in support roles on the incidents.

4 Q. And in your work as a consultant since 2000, have
5 you continued to maintain your familiarity with new
6 developments in forest management?

7 A. Yes, I have.

8 Q. And in fuels management?

9 A. Yes, I have.

10 Q. And in fire suppression?

11 A. Yes.

12 MR. BAIR: Your Honor, we offer Mr. Montgomery as
13 an expert in those topics: forest management, fuels
14 management, and fire suppression.

15 THE COURT: All right, any voir dire?

16 MR. GRAYBILL: No objection.

17 THE COURT: All right. The Court will accept Mr.
18 Montgomery as an expert in the areas proffered.

19 MR. BAIR: Thank you, Your Honor.

20 BY MR. BAIR:

21 Q. Mr. Montgomery, let's talk about your opinions and
22 first lay out what some of those are. Did you submit an
23 initial report in this case?

24 A. Yes, I did.

25 Q. And did that initial report reach conclusions about

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1 the fuels management programs of the BIA and to a lesser
2 extent the Glacier National Park?

3 A. The BIA and then the Blackfeet Reservation, yes.

4 Q. I see. Thank you, Mr. Montgomery, for the
5 clarification.

6 Broadly speaking, what other topics were addressed
7 in your initial report?

8 A. I did an assessment of their fire management
9 programs in terms of their fire management planning. That's
10 one of the areas that I looked at. And I looked at the
11 effects of their forest management program, their timber
12 sales program, and their -- the types of activities that were
13 performed in that program and its effect on the health and
14 well-being of the forest.

15 Q. And did you also submit two rebuttal reports in
16 response to the opinions rendered by Mr. Darrell Schulte?

17 A. I did.

18 Q. Okay. So, we'll be talking about all of those
19 issues today, but let's talk -- start by talking about your
20 assessment of the BIA's Blackfeet Agency fuels program. And
21 to that, we should start by talking about fire history.

22 Did you become familiar with the history of
23 wildland fires in the Blackfeet Tribal Forest?

24 A. Yes, I did. I looked at the fire occurrence
25 history on the Reservation and did an analysis of the fires

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1 that had -- the large fires that had occurred for the last --
2 since about 1940.

3 Q. And although your analysis may have focused on
4 large fires, did you also examine smaller fires in the tribal
5 forest?

6 A. Yes, I did.

7 Q. And is that history, both large and small fires,
8 fully discussed in your initial report.

9 A. Yes, it is.

10 Q. Let's talk about some of the highlights. What did
11 you find when you examined the history of major fires in the
12 Blackfeet Tribal Forest?

13 A. Well, I found that looking at some of the history
14 documents for the Reservation that they -- in 1940, they had
15 a record of a fire that occurred then. And from 1940 on
16 forward, up until the Red Eagle Fire in 2006, there were
17 seven large fires that occurred during that period of time.

18 Q. Out of those seven fires, did any of them spread
19 from Glacier National Park to the Blackfeet Forest?

20 A. There was -- the Napi Peak Fire was one that spread
21 from the Blackfeet Reservation. The 1940 fire was one that
22 spread from the Lewis and Clark National Forest.

23 Q. So let's talk about the Napi Peak Fire. Before you
24 began your research for this case, were you already familiar
25 with that fire?

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1 A. Yes.

2 Q. How?

3 A. I was the incident --

4 THE COURT: Did you mean to say that it spread from
5 Glacier National Park? The Napi fire?

6 THE WITNESS: The Napi Peak Fire started just
7 inside the Glacier National Park boundary and spread onto the
8 Reservation.

9 THE COURT: Okay, I think maybe you misspoke, but
10 thank you for the clarification.

11 THE WITNESS: I'm sorry. I'm sorry, Your Honor.

12 MR. BAIR: Thank you, Mr. Montgomery. And thank
13 you for the clarification, Your Honor.

14 BY MR. BAIR:

15 Q. Were you personally familiar with the Napi Peak
16 Fire before you began your research for this case, Mr.
17 Montgomery?

18 A. Yes, I was.

19 Q. How?

20 A. I was the incident commander that went in there
21 with an incident management team to manage that fire.

22 Q. Tell us a little bit about that fire.

23 A. Well, when I arrived, I received a briefing from
24 the agency administrator, and I was told that the fire
25 originated on the Glacier National -- just inside the Glacier

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1 National Park, a few feet, and then spread onto the Blackfeet
2 Reservation.

3 Q. Now, you just said a few feet. Could you clarify
4 that?

5 A. Well, I was told that it was somewhere in the
6 neighborhood of 50 to 100 feet inside the boundaries where it
7 started.

8 Q. So, the fire started inside Glacier but only just
9 inside Glacier?

10 A. Yes.

11 Q. Okay. And could you tell us generally about that
12 fire, its behavior, its extent?

13 A. Well, it -- I think when it initially spread onto
14 the Reservation it had come under the influence of at least
15 moderate winds. They weren't extremely high-speed winds, but
16 there was enough fire intensity that it spread onto the
17 Reservation and burned approximately 1000 acres. Most of
18 that had burned by the time that I arrived there with my
19 incident management team, but we were able to get a
20 containment on that at approximately 1000 acres. And that
21 was after about ten days, two weeks on that fire.

22 And we had declared containment on it, and we were
23 in the process of demobilizing my incident management team to
24 turn it over to an organization set up to continue with the
25 mop-up and so forth. And one of those extreme wind events

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1 that's typical of that area hit about midnight one night, the
2 night before that we were to depart the fire. And there was
3 no problem during that night. The winds were in the
4 neighborhood of 50 to 70 miles an hour, starting around
5 midnight. I remember it very well because it tore the camp
6 up. And the next morning, we still had no fire visible in
7 the fire area. So, we thought we'd escaped the winds there.

8 The winds had died down about daybreak and
9 continued to blow in the 20 to 30 mile an hour range
10 throughout the morning, and we were very anxious about what
11 was going to happen. We were getting reports from
12 firefighters that we had up on the fire, and there was no
13 visible fire anywhere. But about noon or shortly after noon,
14 the fire blew out and it ended up skirting around the
15 northern flank of the fire and burned a couple more thousand
16 acres, as I recall.

17 Q. So, to clarify, although you and your team thought
18 the fire was contained at approximately 1000 acres, winds
19 then led to the fire breaking containment and burning several
20 thousand more.

21 A. That's right.

22 Q. Let's move forward to the years just before the Red
23 Eagle Fire. In your research, did you become familiar with
24 the 2002 Fox Creek Fire?

25 A. Yes, I'm familiar with the location and how it

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1 burned.

2 Q. So, tell us just a little bit about that fire.

3 A. Well, it was another one of those fires that came
4 under the influence of high winds, and those winds were
5 influential in the acreage burned on that fire.

6 Q. In your research, did you find that high winds were
7 a common factor to the large fires burning within the
8 Reservation?

9 A. Yes, I did.

10 Q. And were those fires all stand-replacement fires?

11 A. Yes, they were.

12 Q. Okay.

13 A. To some degree. And after the winds hit them,
14 anyway.

15 Q. And with the exception of the Napi Peak Fire, did
16 you find any other fires that had crossed the boundary
17 between Glacier National Park and the Blackfeet Reservation?

18 A. Not until the Red Eagle Fire.

19 Q. We've been talking about large fires. Did you also
20 do research into small fires that burned within the
21 Reservation?

22 A. Yes.

23 Q. And what were -- first, what was your basis for
24 that research?

25 A. I looked at the fire occurrence maps and their

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1 records of fires, and also looked at their fire management
2 planning analysis.

3 Q. And what did you find about small fires?

4 A. Well, it showed that during the period in which
5 they analyzed for that fire management planning analysis that
6 fire occurrence during a ten-year period, 1994 through 2003,
7 there were 680 fires within the Reservation, and all of those
8 except the Napi Peak Fire had alleged -- 1994 through 2003,
9 so that was before, but all of those fires were within the
10 boundaries of the Reservation.

11 Q. Now, did any of those smaller fires become larger
12 fires?

13 A. Some of them were larger fires. Those were mostly
14 out in the rangelands.

15 Q. So, based on what you learned through your
16 research, what would you say was the primary fire threat
17 faced by the Blackfeet Tribal Forest?

18 A. It's the fires that originate within the boundaries
19 of the Blackfeet Reservation.

20 Q. I see. And based on that conclusion about the fire
21 threat, what sort of fuel treatments would you expect a
22 prudent forest manager to implement?

23 A. I would expect them to treat the fuels within the
24 boundaries of the Reservation.

25 Q. Okay.

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1 A. Let's take a look at Defendant's Exhibit 124.

2 May I approach the witness, Your Honor?

3 THE COURT: Sure.

4 MR. BAIR: Mr. Anderson and Mr. Graybill have been
5 extremely gracious in letting us use their large copy of this
6 exhibit.

7 BY MR. BAIR:

8 Q. What is this exhibit, Mr. Montgomery?

9 A. This is -- this shows the locations of the fuel
10 treatments that have taken place on the Reservation.

11 Q. Okay. And tell us a little bit about what you see
12 in this map of those fuel treatments?

13 A. Well, they were focused within areas that had
14 either been harvested in timber sales and had regenerated,
15 and their approach was to go in to those cutting units and
16 treat the fuels that had regenerated and reached age --
17 approximately 15-year-old trees.

18 Q. Now, a moment ago, you expressed an opinion about
19 what a prudent forest manager would have done to respond to
20 the fire threats the Reservation faced. Do you believe that
21 this history of fuels treatments is consistent with that?

22 A. I think it is. It -- well, it creates a mosaic
23 that creates -- those treatments create a more resilient
24 forest stand within those areas.

25 Q. Now, let's be very clear. Would these fuel

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1 treatments be effective against every potential fire the
2 Reservation could have faced?

3 A. No. I think it would be effective against your low
4 to moderate-intensity fires, but it would not be effective
5 against high -- high-wind-speed fires that are driven by high
6 wind speeds.

7 Q. And were these fuel treatments effective against
8 the Red Eagle Fire?

9 A. No. The fire -- the Red Eagle Fire -- either
10 burned around them, spotted over them. Anyway, some of them
11 were burned in the fire; some of them survived the fire.

12 Q. But were these fuel treatments an appropriate
13 response to the fire threats that the Reservation did face
14 typically?

15 A. I feel it was.

16 Q. Okay. Let's go on and discuss your opinions in
17 rebuttal to Mr. Schulte's proposal and his opinions. And
18 specifically let's start by talking about how both Glacier
19 National Park and the Blackfeet Reservation are managed.
20 Last week, did you observe Mr. Soleim's testimony about
21 Glacier National Park's management policies?

22 A. I did.

23 Q. And generally speaking, do you agree with how he
24 characterized those policies?

25 A. Yes.

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1 Q. Let's talk about some of them in particular. Are
2 you familiar with Glacier National Park's policy of managing
3 large parts of the Park as wilderness?

4 A. Yes.

5 Q. Tell us about that.

6 A. Well, the management of the Park as a wilderness
7 puts certain kinds of restrictions on fire suppression
8 activities that can be performed, specifically related to use
9 of mechanized equipment.

10 Q. And would those same policies also apply to
11 implementing fuel treatments or specifically fuel breaks?

12 A. Yes, I believe they would.

13 Q. Okay. Do you -- well, actually, let's move on from
14 this and talk about the policies governing the Blackfeet
15 Reservation. Are there limitations on what forest management
16 activities can be undertaken where in the Blackfeet Tribal
17 Forest?

18 A. There is some restrictions, one of those being in
19 Class 1 -- along Class 1 streams, areas that are designated
20 as stream buffers. It runs 100 feet on both sides of those
21 Type 1 -- Class 1 streams, and that precluded -- they
22 prohibit all forest management activities within those, at
23 least they did at that time.

24 Q. Was that changed later, by the way?

25 A. It was changed later in -- I think it was the 2009

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1 forest management plan.

2 Q. Aside from the stream buffer restrictions, were
3 there other restrictions in the 1997 forest management plan
4 that are relevant to your opinions about Mr. Schulte's
5 proposed fuel break?

6 A. Yes. The forest management plan had designated
7 viewsheds, and these were established to address tribal
8 priorities, to protect the visual quality of those areas.

9 Q. So, let's stop there for a moment. Could we take a
10 look at Defendant's Exhibit 6? Do you recognize this
11 document, Mr. Montgomery?

12 A. Yes.

13 Q. Can we zoom out, Megan, and zoom in on the last
14 "whereas" clause there.

15 Does this document discuss some of those
16 limitations that you just mentioned?

17 A. That's leading up to what they say. I think if we
18 move on to the next page, it would address it.

19 Q. Okay, yeah, let's move to the first "therefore"
20 clause on page 2.

21 A. That previous paragraph addresses some of their
22 concerns and why they have established these other
23 restrictions.

24 Q. And what were those concerns?

25 A. Could we back up to that, please?

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1 Q. Yeah, certainly.

2 A. Yeah, it talks about the aesthetic beauty of the
3 Reservation and their interest in protecting those. It also
4 mentions the streams and protecting the quality of the
5 watersheds and the quality of the water. And then it goes
6 into the next page.

7 Q. And in response to those concerns, did the Tribe
8 make recommendations?

9 A. This, and the next page there.

10 Q. So, on page 2 of this document, what does the Tribe
11 recommend?

12 A. Well, they -- in addition to declaring a moratorium
13 on commercial clearcutting on the Reservation, they talked
14 about restricting that in terms of timber harvests which have
15 an adverse impact on the aesthetic routes of the Blackfeet
16 Reservation, as well. And that's along the Highway 89 that
17 traverses the Reservation there, I think is what that refers
18 to.

19 And they also -- and then they made some exceptions
20 to the moratorium that they -- involving disease-infected
21 areas and insect and mistletoe-damaged areas that are within
22 the forest. And number three there talks about that they
23 will -- that the Blackfeet Tribal Business Council and the
24 forestry staff will meet from time to time to talk about how
25 those -- how that direction will be implemented to protect

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1 the natural environment, the aesthetic beauty, and natural
2 ecosystems of the Reservation.

3 Q. And do you know whether these concerns and
4 recommendations resulted in action in the forest management
5 plan?

6 A. They did. It resulted in the designation of
7 viewshed areas, and it also resulted in the designation of
8 highway scenic corridors along the Highway 89.

9 Q. Let's talk about those viewshed areas. Could we go
10 to Plaintiff's Exhibit 26 at page 6, please.

11 Page 6, please. The paginated page 6.

12 Actually, I may have the wrong number here, but
13 let's just, if you could, Mr. Montgomery, describe what some
14 of those specific limitations in viewsheds were.

15 A. Can that be enlarged?

16 Q. Oh, I see, excellent.

17 A. It's kind of fuzzy.

18 Q. There we go. My apologies. I had the wrong page
19 there. We're now on paginated page 3. If we could look at
20 heading five for Aesthetics. Does this discuss some of the
21 limitations on activities affecting the visual quality of
22 Highway 89?

23 A. Yes.

24 Q. Okay. And is this in accord with the Tribe's
25 wishes for preserving the aesthetic quality of that highway?

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1 A. Yeah.

2 Q. And if we move forward to page 62, please.

3 Actually, I think we may have the wrong document here. My
4 apologies, Mr. Montgomery. Could you just tell us what some
5 of the limitations on activities within those viewsheds were
6 in the 1997 forest management plan?

7 A. Well, the restrictions on the viewsheds were that
8 timber harvest operations were restricted there and that only
9 selective marking of trees that are in imminent threat of
10 mortality from insects and diseases could be harvested.

11 Q. And, so, the only harvest that could take place
12 would be for individual trees at risk.

13 A. Yes.

14 Q. Okay. And we can move on from this and talk about
15 one other issue raised in your report, which is funding. Did
16 you hear Mr. LaPlant's testimony last week about BIA funding
17 practices for fuel treatments?

18 A. Yes.

19 Q. And do you agree with the way Mr. LaPlant
20 characterized those funding policies?

21 A. That was my understanding, yes.

22 Q. Could you tell us a little bit about how the BIA,
23 circa 2006 and the years before then, prioritized funding for
24 fuel treatment projects?

25 A. Well, early on, when they had first initiated the

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1 fuels program, they were able to utilize hazardous fuel
2 treatment funding to treat these forest fuels that we saw in
3 the previous map, but after about the year 2000, those
4 priorities changed to place priority emphasis in wildland
5 urban interface areas.

6 Q. And if we can back up just for a moment to the
7 viewshed issues, my colleagues have just saved me here. This
8 is Defendant's Exhibit 26 -- Plaintiff's Exhibit 26, page 62.
9 Does this describe those viewshed activity restrictions you
10 were just describing?

11 A. Yes, that's out of the forest management plan.

12 Q. Okay. So, let's move on and discuss how all of
13 these issues would affect Mr. Schulte's proposed fuel break.
14 First, let me ask you, what do you understand Mr. Schulte's
15 proposal to be?

16 A. Well, they changed as time went on. His initial
17 proposal was to convert areas of Fuel Model 10 to Fuel Model
18 8 by treating the crown fuels, but he also talked about
19 thinning to a 14-foot crown spacing.

20 Q. Okay. And, so, in analyzing whether the issues
21 we've just discussed would be relevant to his proposal, how
22 did you understand his proposal to be at that time? Did you
23 understand -- what I'm driving at is did you understand it to
24 include that thinning proposal?

25 A. Yes.

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1 Q. But would some of these issues still apply
2 regardless of whether thinning is required?

3 A. Yes.

4 Q. So, let's describe these specifically. First, let
5 me ask you, do you believe it would have been prudent for the
6 forest managers of Glacier National Park and the Blackfeet
7 Tribal Forest to construct Mr. Schulte's fuel break prior to
8 the Red Eagle Fire?

9 A. No.

10 Q. Why not?

11 A. Well, because that wasn't the area that was the
12 primary threat, for one thing. The primary threat to the
13 Reservation from fire was from fires that originated within
14 the boundaries of the Reservation. And there were some
15 constraints on being able to do that. They wouldn't have
16 been able to conduct those activities required to construct
17 that fuel break.

18 Q. So, let's talk about that specifically. Do you
19 believe that Glacier National Park's management policies
20 would have created an impediment to implementing this
21 proposal on the Park side of the boundary?

22 A. Yes. The wilderness management practices that they
23 have on the Park would have prevented the use of any kind of
24 mechanized equipment to construct that.

25 Q. And when you say mechanized equipment, what do you

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1 mean?

2 A. Well, chainsaws are one of the issues. This -- to
3 construct this fuel break would have required a removal of
4 some mature, overmature timber, which is your larger timber,
5 so it would almost certainly require removal of that using
6 perhaps dozers, skidders, or something to remove that
7 material from the area.

8 Q. So, in your opinion as an expert in forest
9 management, do you believe there would be any way to
10 implement these changes while still maintaining consistency
11 with those wilderness management policies?

12 A. Well, the National Park Service has a process that
13 they have to go through to analyze such projects. It's
14 called minimum requirement analysis process, and after going
15 through that, I guess that's their determination process
16 there.

17 Q. And after reviewing this proposal and those
18 policies, do you believe that the two are likely consistent
19 with each other?

20 A. I don't think it would have allowed the project to
21 proceed.

22 MR. BAIR: May I approach the witness with a
23 demonstrative, Your Honor?

24 THE COURT: Sure.

25 BY MR. BAIR:

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1 Q. This is Defendant's Demonstrative 1. Could you
2 tell me what this is, Mr. Montgomery?

3 A. It identifies areas that are excluded from
4 commercial timber sales.

5 Q. And my apologies, Mr. Montgomery. If you could
6 speak a little more directly into the microphone, that would
7 be helpful.

8 A. I'm sorry. It looks like areas that have been
9 excluded from commercial timber sales within the Reservation.

10 Q. Okay. And does this include the areas subject to
11 the stream buffer restrictions that you described earlier?

12 A. Yes, it does.

13 Q. Okay. And does this also include areas that are
14 designated as viewsheds?

15 A. Yes, it has the viewsheds delineated as well.

16 Q. And would those stream buffer areas first fall
17 within the area proposed for Mr. Schulte's fuel break?

18 A. Certainly the one on Divide Creek.

19 Q. Okay. And would that create impediments to
20 implementing Mr. Schulte's proposal?

21 A. Yes, it would.

22 Q. How so?

23 A. Well, there's no -- any kind of forest management
24 activities in there would have been prohibited. They could
25 not have done any thinning. They couldn't have run --

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1 operated any kind of equipment within that stream buffer
2 zone.

3 Q. And would the restrictions within viewsheds --
4 well, first, are those viewshed areas within the area in
5 which Mr. Schulte proposes his fuel break?

6 A. Yes, there is the one there. I don't know if you
7 can see it there, but it's the -- it starts along Divide
8 Creek and -- and goes to the south toward Divide Mountain.

9 Q. And would those viewshed restrictions create
10 impediments to implementing Mr. Schulte's proposal?

11 A. Yes, it would.

12 Q. How so?

13 A. Well, there again, this was mature and overmature
14 timber within that viewshed, and it supported some of the
15 heaviest timber volumes within the Reservation based on the
16 forest inventory analysis. That would have required some
17 pretreatment before they proceeded with the subsequent
18 thinning operations to create Mr. Schulte's fuel break, and
19 that would have required preparing a timber sale to remove
20 that.

21 Q. A moment ago, we looked at a tribal resolution to
22 discuss the Tribe's stated preferences for management of the
23 forest. Do you believe Mr. Schulte's proposal would be
24 consistent with the Tribe's preferences?

25 A. No, because that would -- a timber sale in that

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1 area to remove the mature and overmature timber that would be
2 required would have an adverse visual impact on the viewshed
3 area.

4 THE COURT: Mr. Bair, why don't we take a 15-minute
5 break.

6 MR. BAIR: Certainly, Your Honor. Thank you.

7 THE COURT: Reconvene at 3:15.

8 (Court in recess.)

9 THE COURT: Please be seated.

10 All right, let's go ahead.

11 MR. BAIR: Thank you.

12 BY MR. BAIR:

13 Q. Mr. Montgomery, I have just one more topic I'd like
14 to discuss about the practicability of Mr. Schulte's proposed
15 fuel break. Do you believe that Mr. Schulte may have
16 improperly used the benefit of hindsight in designing this
17 fuel break?

18 A. Yes, because that's something that fire managers
19 don't have whenever they're planning these.

20 Q. And how do you see the influence of hindsight in
21 Mr. Schulte's fuel break design?

22 A. Well, it's clear that he looked at the fire
23 behavior that occurred on the Red Eagle Fire and then he
24 started designing his fuel break to accommodate that fire
25 behavior. And he looked at -- not only looked at the crown

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1 fire behavior that occurred but the spotting as well. And
2 ended up designing his fuel break to be one mile wide, a half
3 mile on each side of the boundary.

4 Q. And do you believe that a prudent forest manager
5 would have been able to exercise that same judgment without
6 specific knowledge of the Red Eagle Fire?

7 A. No, you don't have that information available to
8 you.

9 Q. Let's move on and talk about your opinions about
10 the efficacy of Mr. Schulte's fuel break. What is a fuel
11 break designed to do?

12 A. It's designed to alter the fuels within your fuel
13 break to allow fire suppression forces to take suppression
14 action on the fire.

15 Q. So, we should talk in more detail, then, about
16 suppression and how it works. What is wildland fire
17 suppression?

18 A. That's the tactical operations that are taken to
19 stop the spread of the fire.

20 Q. And what are some of those operations?

21 A. Building a fire line is one of those things.

22 Q. And are there also air forces involved?

23 A. Well, you have -- those are the resources that are
24 utilized in suppression, but the primary -- if you're talking
25 about the firefighting resources, the primary resources that

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1 you use there are fire line construction crews. You have
2 engines that can also be used, and dozers are used quite a
3 lot on fires. And then you have your air resources, which
4 include helicopters and air tankers.

5 Q. And what are all of those forces trying to do when
6 they attempt to suppress a fire?

7 A. They're working in concert to get a fire line
8 constructed so that it will stop the spread of the fire.

9 Q. Is wildland firefighting dangerous?

10 A. It's very dangerous.

11 Q. How so?

12 A. Well, if you don't pay attention to all the safety
13 risks and the hazards in firefighting, it's very easy for
14 firefighters to get trapped and overrun by the fire.

15 Q. And how does that typically happen?

16 A. Well, quite often it happens because of the
17 misjudgment on the part of firefighters, but it also occurs
18 due to events that suddenly happen and catch the firefighters
19 by surprise.

20 Q. Now, when you say events, what do you mean?

21 A. Well, you can get a sudden wind change, that's one
22 of the things that happens quite a lot.

23 Q. Is the fire's behavior relevant to how dangerous it
24 is?

25 A. Repeat that, please.

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1 Q. Is the fire's behavior relevant to the dangers that
2 firefighters face?

3 A. Oh, that's the thing that gets you in trouble. As
4 long as you have a low-intensity fire, you can pretty much
5 control things there. But when you have extreme fire
6 behavior, then that imposes some risks that you really have
7 to prepare for.

8 Q. Does that extreme behavior include crowning?

9 A. Yes.

10 Q. And does it also include spotting?

11 A. Yes.

12 Q. And what's the danger with spotting?

13 A. Well, if you have firefighters deployed on the --
14 along the fire's edge, and you get a spot fire that goes over
15 the firefighters, it can start to burn back into them and
16 trap them between a spot fire and the main head of the fire.

17 Q. Are there policies in place to help protect
18 firefighter safety?

19 A. Yes, there are.

20 Q. Tell us about those.

21 A. Well, there are several of them. One of them is
22 that you have a duty or a limitation. That's referred to
23 as a two-to-one work ratio. For every two hours of work,
24 you have to have one hour of rest during your operational
25 period, which is within the day. There's length of

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1 assignment limitations, and after 14 days on a fire, they
2 have to take -- they have to be released and take two days
3 off. You also have requirements for safety zones and escape
4 routes on the fire.

5 Q. And I may be getting the terms wrong here, are
6 there standard firefighting orders in place to protect
7 firefighter safety?

8 A. Yes, there are ten standard orders. And there's
9 also watch-out situations.

10 Q. What is a watch-out situation?

11 A. Well, those are situations that can happen on a
12 fire that you need to pay attention to, and you have to
13 constantly be looking for those things. And if there's
14 something out there, you need to do an analysis. And if it's
15 something that needs to be addressed, you have to mitigate
16 it.

17 Q. A moment ago, you mentioned safety zones. What is
18 a safety zone?

19 A. A safety zone is a place where firefighters can get
20 to in case the fire behavior becomes too extreme for them.
21 It gives them a chance to get out of the front of the fire.

22 Q. And could a fuel break be a safety zone?

23 A. No.

24 Q. So, what is a safety zone? What are you looking
25 for in identifying one?

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1 A. A safety zone -- a safety zone is a clearing
2 that's cleared of all the combustible material. There are
3 standards for the size of a safety zone, and it's basically
4 four times the height -- you have to have a separation
5 between the fire and the firefighters themselves. And the
6 radius of that safety zone has to be at least four times the
7 length of the -- maximum length of the flames.

8 And that's the standard on level ground without
9 wind. And if you have steep ground and winds, you have to
10 compensate for those to increase the radius of the safety
11 zone.

12 Q. All of these policies you've discussed -- the
13 orders, the watch-out situations -- is compliance with those
14 compulsory for firefighters?

15 A. The ten standard orders are compuls- -- are
16 required. You don't violate them.

17 Q. I see. In your preparation for the case, did you
18 familiarize yourself with the behavior and progression of the
19 Red Eagle Fire?

20 A. Yes, I did.

21 Q. Did you hear Mr. Soleim's testimony yesterday about
22 the fire's progression?

23 A. Yes.

24 Q. And do you believe that he described it accurately?

25 A. Yes, he did.

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1 Q. Okay. And is there a full history of the fire in
2 your initial expert report?

3 A. Yes.

4 Q. Did you see the video that Mr. Soleim introduced
5 yesterday?

6 A. Yes.

7 Q. I'd like you to look at some excerpts from that
8 video, focusing on the 29th of July, and tell us what's
9 happening. And perhaps we should start on the morning of
10 July 29th, 2006. What was happening at 10:00 a.m. and what
11 had happened leading up to this?

12 A. Well, you heard -- you saw this video yesterday,
13 and Mr. Soleim talked about the deployment of the smoke
14 jumpers and the air tankers there. And you also heard him
15 say that they were ineffective in the initial attack. There
16 were no firelines constructed during initial attack because
17 by the time six smoke jumpers arrived the fire had grown
18 beyond their capability to have any effect on it. And
19 without the ground forces there to reinforce the retardant
20 drops, there was no chance that they would be effective.

21 So, you saw that yesterday. And as you look at the
22 video, starting here today, you'll see that this is starting
23 in the morning, and you'll see that the fire is under an
24 inversion layer, and that's a layer of air -- of warm air
25 over a cooler air, and it creates a layer over the fire

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1 itself that holds down the heat. And, so, the fire intensity
2 early in the morning is -- it's not burning with any high
3 intensity. But as we get into the video, you'll see that
4 that changes.

5 Q. So, let's begin playing a short clip from this
6 video, beginning at 10:00 a.m. on the 29th of July. And, Mr.
7 Montgomery, feel free to describe what we're seeing here.

8 A. Okay. The next morning, they did a helicopter
9 reconnaissance around 10:00 a.m., and they found that the
10 fire had spread to approximately one mile northeast of Red
11 Eagle Lake. And they estimated the size to be 2200 acres.
12 What you're seeing now is the fire size at about noon, and
13 the inversion layer has lifted, and you're starting to see
14 smoke rise as the day -- as the temperature warms up during
15 the day. And you're starting to see a little bit of effects
16 of winds on this.

17 Q. So let's continue watching from noon on.

18 A. Here you can see the effects that the winds are
19 having as the fire builds in intensity.

20 Okay. This is at 3:00 p.m. approximately, and at
21 this time, you had sustained south/southwest winds at 20, 25
22 miles per hour. And you saw the effects of that as it built
23 up to this particular time in the video. Relative humidity
24 had dropped down low to -- into the low twenties, and the
25 fire behavior is starting to become extreme with sustained

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1 wind-driven crown fire. And this was classed by the fire
2 behavior people out there as wind-driven, dependent, and
3 independent crown fire.

4 Q. And what does an independent crown fire mean again?

5 A. An independent crown fire -- well, I might mention
6 dependent first of all. It's crown fire that is dependent on
7 fire -- the heat that's generated from burning of the surface
8 fuels. And an independent crown fire is the fire that's in
9 the crowns but it's spreading with the influence of the
10 winds, without influence from the surface fuels. And as long
11 as those winds continue to blow and -- it carries the heat
12 into the adjacent crowns, and it maintains that crown fire
13 independent of the surface fuels.

14 Q. So, would you characterize the fire's behavior as
15 of 3:00 p.m. as extreme?

16 A. Yes.

17 Q. Was the fire inside the Blackfeet Tribal Forest
18 yet?

19 A. No.

20 Q. Do you know approximately how far away it was?

21 A. It was probably -- I would guess that it's probably
22 three miles.

23 Q. Okay. So --

24 THE COURT: Mr. Montgomery, are you referring to a
25 document of some kind in giving this testimony?

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1 THE WITNESS: Yes, I am.

2 THE COURT: And what is that?

3 THE WITNESS: It was a fire behavior analyst's
4 documentation of the fire behavior that occurred on that day.

5 THE COURT: Is it one of the exhibits in our case?

6 THE WITNESS: Yes.

7 THE COURT: Okay.

8 THE WITNESS: It's not a -- it's not -- I don't
9 recall. It's not an exhibit for the Defendants, but it's an
10 exhibit to my report.

11 BY MR. BAIR:

12 Q. And if I may, Mr. Montgomery, do you also have some
13 brief notes about the fire's progression in front of you to
14 cue your memory?

15 A. Pardon me?

16 Q. Do you also have some notes about the fire's
17 progression to cue your memory in front of you?

18 A. Yes, as far as the time frames.

19 MR. BAIR: We'd be happy to disclose those if you'd
20 like, Your Honor.

21 THE COURT: Yeah, just make sure the Plaintiff gets
22 a copy.

23 MR. BAIR: We'll make sure we do.

24 THE COURT: Thank you.

25 BY MR. BAIR:

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1 Q. And I'm sorry, Mr. Montgomery, do you have any
2 other documents with you today?

3 A. All I have is the guides for constructing fire --
4 the safety zones.

5 MR. BAIR: We're happy to disclose that, as well,
6 Your Honor.

7 THE COURT: All right, very well.

8 BY MR. BAIR:

9 Q. So, as of 3:00 p.m., were there suppression forces
10 in the area of the boundary between the Park and Reservation?

11 A. I don't -- I'm not aware of any on the boundary,
12 no.

13 Q. What were the available suppression forces doing at
14 this time?

15 A. On the 29th, there were no suppression forces that
16 were available to be deployed on the fire. They were -- they
17 were mobilizing structure protection resources to provide
18 protection around the community of St. Mary.

19 Q. Okay. So, would their goal in that role be to
20 protect structures?

21 A. Yes.

22 Q. And also to protect human life?

23 A. Yes.

24 Q. Okay. So, let's move on from 3:00 p.m. in the
25 video. Please tell us what we're seeing here, Mr.

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1 Montgomery.

2 A. You can see the continued influence of the winds as
3 they increased and carried the fire to the northeast toward
4 St. Mary and the Reservation boundary.

5 Q. And it's a little hard to see the timestamp here,
6 but do you know approximately what time it is in the video?

7 A. It looks like it's about 4:00 p.m.

8 Q. And can you tell us anything about the fire's
9 behavior from what you see here?

10 A. Well, you can see some intense flame lengths there,
11 and you can see the black smoke, which is the result of the
12 intense fire behavior.

13 Q. Okay. And let's go ahead and watch the rest of the
14 brief video.

15 A. It continues to spread to the northeast, and you
16 can see the intense fire behavior with the flame lengths that
17 were occurring there. These were estimated to be 100 to 150
18 feet. In one case, they estimated that they were in excess
19 of 150 feet.

20 Q. And are those typical of the conditions that the
21 fire would have -- the behavior that the fire would have been
22 exhibiting at the time it would have reached Mr. Schulte's
23 fuel break, if such a fuel break were in place?

24 A. Yes.

25 Q. So, tell us, do you believe that Mr. Schulte's

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1 proposed fuel break would have allowed for effective
2 suppression of the Red Eagle Fire?

3 A. I don't believe it would.

4 Q. Tell us why.

5 A. Well, because of the crown -- the wind-driven crown
6 fire, the winds were carrying the flames through the crown,
7 so you had the winds keeping the crown fire heat moving from
8 crown to crown, and it would have continued to spread through
9 that crown. You had spotting that was up to a mile ahead of
10 the fire, and this was documented in the fire behavior
11 analyst report. And, so, it would have spotted across the --
12 the fuel treatment.

13 Q. Do you believe the topography would have presented
14 safety risks for the firefighters?

15 A. They were -- if they had been -- first of all, if
16 the fire had not laid down, you would never deploy those
17 firefighters ahead of the fire because that's one of the
18 watch-out situations. You don't put firefighters out ahead
19 of the fire when it's burning with that intensity. And in
20 this case, they would not have had the safety zones, and
21 escape routes would have been questionable as well.

22 Q. Would it have been possible to implement those
23 safety zones?

24 A. Not ahead of this. If that fire was spreading at
25 the spread rates that you've observed here, they wouldn't

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1 have had opportunity to construct those because there's no
2 natural safety zones that would be adequate.

3 Q. Do you believe that the limited availability of
4 suppression resources would have presented issues to
5 suppressing this fire?

6 A. Not in my opinion, because I believe the fire
7 behavior would have continued with a level of intensity that
8 you wouldn't have been able to deploy firefighters out front.

9 Q. And even if the fire's behavior had moderated
10 somewhat, would there have been sufficient available
11 suppression resources?

12 A. It would have had to almost lay down and stop
13 spreading in order to utilize the few resources that were
14 starting to arrive.

15 Q. Are you familiar with Dr. Finney's FARSITE modeling
16 of Mr. Schulte's proposal?

17 A. Yes.

18 Q. Does his modeling accord with your expectations for
19 the fire's behavior and how it would have affected
20 suppression?

21 A. Yes, I agree with Dr. Finney.

22 Q. Is there anything specific in his report that is
23 relevant to your opinion?

24 A. Yes. In his modeling, he showed the fire continued
25 to spread through the fuel break. He showed that there was

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1 spotting, and he also showed that the -- that the flame
2 lengths were anywhere from 20 to 60 feet and that the -- and
3 that the fire breached the fuel break rather quickly.

4 Q. Now, 20 to 60 feet is a lot less than 150 feet.
5 Would that still have presented safety issues?

6 A. Yes, it would, because it's still a crown fire
7 that's high intensity. It's just not as intense as what
8 you've been observing.

9 Q. Is there anything that we haven't discussed that's
10 relevant to your opinion about whether this fire could have
11 been suppressed in Mr. Schulte's proposed fuel break?

12 A. Nothing more than just to emphasize the safety
13 issues that would have been involved here, in addition to
14 having firefighters out in front of an intense fire that was
15 burning under the influence of these winds as it approached
16 the fuel break, you would have had to deploy firefighters up
17 on -- by the timberline on Divide Mountain. They would have
18 been building fire line down-hill, and that's another watch-
19 out situation.

20 Q. So, in sum, do you believe this fire could have
21 been attacked by firefighting forces in a way that would
22 prioritize firefighter safety?

23 A. I don't think so.

24 Q. Do you believe that any reasonable fuel break would
25 have allowed for effective suppression of this fire?

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1 A. I don't believe so.

2 Q. Okay. Now, during your work on this case, have you
3 become familiar with the area burned by the Red Eagle Fire?

4 A. I'm sorry, say --

5 Q. Have you become familiar with the area burned by
6 the Red Eagle Fire?

7 A. Yes, I have.

8 Q. After a fire like this, how would you expect the
9 ecosystem to respond?

10 A. Well, initially, you're going to get your grasses
11 and your shrub species come in, but because there's a lot of
12 lodgepole pine, there are lodgepole pine stands, as well as
13 scattered lodgepole pine in the spruce and subalpine fir
14 stands, and lodgepole pine thrives on stand-replacement fire
15 by releasing seeds. So, you get good regeneration of
16 lodgepole pine. So, I've seen good regeneration of lodgepole
17 pine in those areas. And in some areas, you have some spruce
18 that is regenerating.

19 Q. So, to be clear, have you visited the Red Eagle
20 Fire burn area?

21 A. Yes, I have.

22 Q. And have your observations of that regeneration
23 matched what you would expect?

24 A. Yes.

25 Q. Let's take a look at Figure 12 from Mr.

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1 Montgomery's initial report, which is a photo of the burn
2 area. Tell us about what we see here, Mr. Montgomery.

3 A. Well, what -- you see those grasses and the heavy
4 lodgepole pine regeneration.

5 Q. And if we look at Exhibit -- I'm sorry, Figure 14
6 from Mr. Montgomery's initial report, what do we see here?

7 A. This is an aspen stand that was burned through, and
8 this is a typical response of those aspen stands. It will
9 kill the trees, but aspen is a prolific sprouter when fire
10 kills the main tree.

11 Q. Ecologically, is the area burned by the Red Eagle
12 Fire recovering from the fire in the way you'd expect?

13 A. Yes, it is.

14 MR. BAIR: We have no further questions. Thank
15 you.

16 THE COURT: All right.

17 Cross examination?

18 MR. GRAYBILL: May I approach, Your Honor?

19 THE COURT: Yes.

20 MR. GRAYBILL: This is a bundle of exhibits that we
21 may or may not get to.

22 CROSS EXAMINATION

23 BY MR. GRAYBILL:

24 Q. Good afternoon, Mr. Montgomery.

25 A. Good afternoon.

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1 Q. You know me by now. You've been at the trial, I
2 think, from the beginning; isn't that right?

3 A. That's right.

4 Q. Okay. I'd like to start with your resume. So, if
5 we could go to your report at page -- let's see, it's
6 Defendant's Exhibit 135. And I think it starts around 135-
7 113. Is that right?

8 A. Yes.

9 Q. And do you have it there?

10 A. Yes.

11 Q. And we'll probably be able to bring it up here at
12 some point. In any event, let me go on, and then we'll work
13 out these issues. You have it in front of you?

14 A. Yes, I do.

15 Q. I want to -- I want to take a look at your
16 employment history first. It appears from your employment
17 history wildfire suppression is a large component of it; is
18 that correct?

19 A. It's a significant part of it, yes.

20 Q. Okay. I think you testified that as part of your
21 work at the BIA and the BLM you engaged in some fuels
22 management, correct?

23 A. That's correct.

24 Q. I think you testified that you designed some fuels
25 treatment when you worked for the BIA, correct?

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1 A. That's correct.

2 Q. And that would have been before 1980?

3 A. Yes. Yes.

4 Q. Okay. In any event, after that, my sense from
5 reading the resume is that as a fire officer you were more
6 focused on suppression and suppression preparedness when you
7 were working for the BLM; is that correct?

8 A. That was a key aspect of it, but I also was
9 initiating a fuels management program in some of the BLM
10 districts. And I worked with the fire management officers in
11 those districts to initiate that.

12 Q. When you say you were initiating them, does that
13 mean you were designing them?

14 A. We were -- I was helping them design them, lay them
15 out, and helping them implement.

16 Q. And where were they?

17 A. One of them was in Miles City District; another one
18 Lewistown District.

19 Q. And what kind of cover type are we talking about?

20 A. These were in ponderosa pine -- along the Missouri
21 Breaks area.

22 Q. Okay. How big an area?

23 A. Missouri Breaks is a big area. Our fuels
24 treatments were designed more like a landscape treatment. We
25 were using prescribed fire to not only reduce the fuels in

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1 these ponderosa pine stands but also to improve the health of
2 the stands.

3 Q. And that was when?

4 A. That would have been 1979 and -- 1978, '79.

5 Q. Okay. So, it's fair to say that other than what
6 you've just described, most of your career with the BLM as a
7 fire officer has been focused on suppression and suppression
8 preparedness?

9 A. No, there was -- when I moved into the -- well, in
10 -- when I moved to the Roseburg District, one of the major
11 programs within my resource area was the forestry program.
12 And it involved treatment of logging slash from all of the
13 clearcutting that was done. We had -- I don't recall the
14 exact number of acres that we were treating using broadcast
15 burning in those areas, but I was responsible to see that
16 those were conducted and conducted properly.

17 Q. But you just said that -- you used the term
18 "broadcast burning," and you used the term "logging slash,"
19 that you were burning logging slash. You don't use broadcast
20 burning to burn logging slash, do you? Or is that a
21 situation where you were doing that?

22 A. When you have clearcuts, like we had there in the
23 Roseburg District, you -- were weren't piling any of that.
24 We were using broadcast burning internally.

25 Q. Okay, so you were burning the slash after the

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1 clearcut?

2 A. After the timber harvest, yes.

3 Q. Similar to what Dr. Finney was talking about
4 earlier today where you do a clearcut and then burn.

5 A. Yes.

6 Q. Is that right?

7 A. And that's to dispose of the fuels, but also
8 seedbed preparation.

9 Q. Okay. Well, let's go to the examples of litigation
10 consultant work, which is at page 135-113, page 109 of your
11 report. And, actually, probably if we start on page 110, and
12 as I look through this, I see that with regard to litigation
13 consultant work, you appear to be focused on origin and cause
14 investigations regarding fire suppression strategies,
15 wildland fire personnel issues, adequacy of prescribed fire
16 planning and implementation, suppression cost, overall
17 management of a fire. These don't appear to be related to
18 fuels management; is that correct?

19 A. Several of the cases, while fuels management may
20 not be described in there, fuels management was one of the
21 issues that had to be addressed in the cases.

22 Q. Okay. Well, let's go on to your wildland
23 firefighting experience on page 111 of your resume -- or of
24 your report, I should say. And this indicates that -- some
25 of what you've already talked about, that you have

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1 firefighting experience as an incident commander; you're
2 familiar with prescribed fire; wildland fire and emergency
3 training instructor; you attended wildland fire training.
4 Within this section of your resume, Wildland Firefighting
5 Experience, there is no fuels management experience stated;
6 is that correct?

7 A. This is strictly fire suppression experience that's
8 listed here.

9 Q. Okay. Is it safe to say that in the latter part of
10 your career the focus has been suppression and fuels
11 management has not been nearly as much of an issue in the
12 latter half of your career?

13 A. What are you calling latter half?

14 Q. All right, that's a good point, sir. After you
15 started with the BLM.

16 A. No. As state fire management officer, I had
17 responsibility for the programs that were being implemented
18 in 11 BLM districts. And --

19 Q. Let me just stop you. When you say programs, are
20 you talking about fuels management programs?

21 A. Fire management programs that included fuels. When
22 those -- the fire management programs within the BLM
23 districts involved not only the preparedness and all those
24 aspects of making sure that you're prepared to suppress the
25 fires that occur in suppressing those fires, but the fire

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1 management officers are also responsible for the fuels
2 management programs within the districts.

3 Q. I see. And, so, then, as part of your work with
4 the BLM, you were actively planning fuels managements in the
5 various units that you were responsible for, and I take it
6 you did that in order to protect those units, that land, from
7 being impacted by wildland fire?

8 A. Yes.

9 Q. Okay.

10 A. Some of it was -- some of it was for restoration
11 purposes. That also means protecting an area from fire.

12 Q. And, so, you would agree with me that in order to
13 effectively protect forestlands from wildland fire, planning
14 is a key component, correct?

15 A. Very much so.

16 Q. And you would agree with me that evaluating the
17 risks of wildland fire with regard to the lands that you're
18 responsible for is a key component to protecting those lands.

19 A. Yes. You look at what your threats are and you
20 address those threats.

21 Q. So, after you've evaluated the threats and you've
22 planned to meet the threats in some way, another key
23 component is to actually implement a plan?

24 A. Yes.

25 Q. Okay. So, let me ask you about some issues that

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1 you just discussed with Mr. Bair. You indicated in your
2 testimony that fire coming from Glacier National Park was not
3 the primary threat to the Blackfeet Forest. Is that right?

4 A. That's correct.

5 Q. Okay. So, had you been a forest manager for the
6 Blackfeet Forest, you would have -- as you just described,
7 one of the things you would have done is evaluate the risks
8 to the forest, correct?

9 A. I'm sorry, would you clarify your question?

10 Q. One of the things that you just described that you
11 did with the BLM is evaluated the risk of fire to the forest
12 or to the lands you were protecting, correct?

13 A. Correct.

14 Q. And in doing that for the Blackfeet Tribal Forest,
15 you would have known, I take it, that the vast majority of
16 fires that originate on the Reservation, that are ignited
17 within the Reservation boundaries, are extinguished at less
18 than ten acres, correct?

19 A. That's correct.

20 Q. You would also have known that there were very
21 substantial fire suppression resources located on the
22 Reservation to fight fires that ignited on the Reservation,
23 correct?

24 A. I'm aware of the resources that were available on
25 the Reservation.

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1 Q. And they're substantial, aren't they?

2 A. Yes. When -- as long as there's nothing happening
3 elsewhere and they aren't dispatched to other fires.

4 Q. Well, are you critical at all of the BIA for under-
5 resourcing the fire cache on the Blackfeet Reservation?

6 A. I didn't say that.

7 Q. Okay. You're not critical of the BIA for that
8 reason, are you?

9 A. No.

10 Q. Okay. And, so, we just saw this video. We've seen
11 it a couple of times now, of a very intense fire moving
12 across the Glacier Park landscape towards the Blackfeet
13 Reservation, correct?

14 A. That's correct.

15 Q. Okay. That kind of fire scenario is not a scenario
16 that would allow for control through suppression of that
17 fire, at least absent some sort of fuels treatment; isn't
18 that true?

19 A. Even a fuels treatment would not have had any
20 effect on that fire burning at that intensity.

21 Q. Okay. So, it's fair to say that fires that ignite
22 on the Reservation have suppression resources that can be
23 immediately or very quickly applied to them, and they
24 typically get put out. But a fire coming from Glacier
25 National Park that is out of control like the one that we've

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1 seen in the video, your testimony is that that's a fire that
2 suppression, the kind of suppression resources on the
3 Blackfeet Reservation, would not be able to control, correct?

4 A. That's correct.

5 Q. So, isn't it true, then, that the primary threat to
6 the Blackfeet Reservation is the kind of fire that is coming
7 across the landscape that can't be controlled through
8 suppression?

9 A. It's that kind of fire, but there's fires that can
10 originate within the boundaries of the Reservation, and if
11 they come under the same influence from strong winds as the
12 Red Eagle Fire, you could have the same outcome. And there
13 have been fires that have had that outcome.

14 Q. There's never been a fire that has burned as many
15 commercial timber acres as the Red Eagle Fire, correct? On
16 the Blackfeet Reservation.

17 A. I think that's correct, but you -- that's simply
18 because the winds didn't persist like they did under the
19 conditions that the Red Eagle Fire burned.

20 Q. Okay. My point is that large fires moving across
21 the landscape are a primary -- the primary threat to the
22 Blackfeet Reservation Forest, isn't that right?

23 A. Fires that come under the influence of a strong
24 wind, such as the Red Eagle Fire did, have the potential to
25 burn large acres, and you're going to end up with stand-

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1 replacement fire.

2 Q. Okay. And, so, part of the purpose of planning and
3 evaluating risks like a large, uncontrolled fire coming
4 across the landscape is to determine whether or not some form
5 of fuels reduction treatment can be implemented to control or
6 change that fire behavior, making it more susceptible to fire
7 suppression; isn't that right?

8 A. In the absence of total removal of the fuels out in
9 front of that, you could not have created a reasonable fuel
10 break that would have influenced the Red Eagle Fire.

11 Q. Can you see that, sir?

12 A. Yes, sir.

13 Q. Apparently, we don't have our screen. Okay.

14 I'm going to refer you to Defendant's Exhibit 124,
15 and you talked about this in response to some of Mr. Bair's
16 questions. First of all, you did not plan these fuel
17 reduction projects that are stated here, correct?

18 A. That's correct.

19 Q. And you didn't talk to anybody who did plan them in
20 preparing for your testimony?

21 A. I talked to a person who was involved in some of
22 them.

23 Q. And who was that?

24 A. Ray Hart, who was the fuels specialist there for a
25 period of time.

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1 Q. Okay. It's your testimony that these -- was it
2 your testimony that these are precommercial thinning
3 projects, or are they hazard fuel reduction projects?

4 A. They were hazard -- classified as hazard fuels
5 reduction projects that involved thinning and disposal of the
6 thinning slash.

7 Q. Okay. And I think you testified that the Red Eagle
8 Fire burned around some of these. Do you remember that
9 testimony?

10 A. Some of them, yes.

11 Q. And you also testified that the Red Eagle Fire was
12 -- that even though the Red Eagle Fire burned through this
13 area, some of these fuel hazard reduction projects survived.
14 Some of these -- the forests where this was done.

15 A. Some of them survived, but some of them didn't
16 survive.

17 Q. Okay. The fact of the matter is that when this
18 large, out-of-control fire moved into the Blackfeet Forest,
19 there is evidence that these hazard fuel reduction projects
20 were effective and that some survived and the fire burned
21 around others. Isn't that true?

22 A. Some of them.

23 Q. It's true, however, that there were no fuel
24 reduction treatment areas, landscape-sized treatment areas
25 along the border that would have potentially changed the

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1 behavior of the Red Eagle Fire in the way that these fuel
2 reduction projects did that are on Exhibit 124?

3 A. There were none right along the boundary, no.

4 Q. Now, as I understand it, You indicated that -- you
5 stated in response to some of Mr. Bair's questions that it
6 would not have been prudent to do those kinds of treatments
7 along the boundary, the kind that Mr. Schulte is recommending
8 in this case, one, because fire coming across the border was
9 not the primary threat; and, two, because of certain
10 constraints. Do you remember that testimony?

11 A. Yes.

12 Q. Will you agree with me that fire coming across from
13 Glacier Park would certainly be a major threat to the
14 Blackfeet Forest?

15 A. It's one of the threats to the Blackfeet Forest.

16 Q. It's one that a forest manager working for the BIA
17 responsible for the Blackfeet Forest would have to consider?

18 A. You would have to consider it.

19 Q. Okay. Now, with regard to these constraints, as I
20 understand it, the first set of constraints were National
21 Park Service policies that would not have permitted the kind
22 of treatments that Mr. Schulte is proposing; is that right?

23 A. That's my opinion, yes.

24 Q. Okay. You're not offering a legal opinion here,
25 though, are you, sir, with regard to whether or not National

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1 Park Service policies take some sort of priority over trust
2 responsibilities that the BIA has?

3 A. No.

4 Q. You also indicated that some of these constraints
5 involved policies on the Blackfeet side, on the Blackfeet
6 Reservation, correct?

7 A. It involved practices that were laid out in the
8 forest management plan.

9 Q. Okay. And the forest management plan that you're
10 talking about is the 1997 to 2006 forest management plan?

11 A. Yes.

12 Q. And that's a forest management plan that was
13 generated by the BIA, correct?

14 A. It was generated by the BIA, and it integrated
15 tribal priorities and direction from the Tribal Council.

16 Q. Okay. Are you here to offer a legal opinion about
17 whether or not the BIA has the final word with regard to the
18 policies that are followed in terms of forest management or
19 the Tribe does?

20 A. No.

21 Q. Okay. The fact of the matter is that the forest
22 management plan is a BIA-generated document; isn't that true?

23 A. It is.

24 Q. Okay.

25 A. With -- in coordination with the Blackfeet Tribal

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1 Council.

2 Q. Okay. You worked for the BIA. Does the BIA, at
3 least when you were working for it, did it have authority to
4 determine what forest management policies were going to be
5 applied in tribal forests?

6 A. There were certain requirements that had to be met
7 based on regulations -- laws and regulations, but we always
8 consulted with the Blackfeet Tribe in how we went about
9 implementing those.

10 Q. Okay. So, the BIA would consult with tribes. Did
11 you actually work on the Blackfeet Reservation?

12 A. I did. I wasn't assigned to the Blackfeet
13 Reservation, but I've worked on the Blackfeet Reservation,
14 assisting them to do their work there from time to time.

15 Q. And, so, based on that experience and based on your
16 review of the fire and forest management plans in this case,
17 would you agree with me that the BIA is the entity that
18 provides technical and formal and scientific information with
19 regard to management of the tribal forest?

20 A. Yes.

21 Q. Okay. So, the BIA, in consulting, as you say, with
22 the Tribe, is the expert with regard to forest management;
23 isn't that right?

24 A. They're supposed to be, yes.

25 Q. And based on your review of the forest and fire

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1 management plans, the Blackfeet Tribe, that was true with
2 regard to the Blackfeet Agency; isn't that right?

3 A. I think so.

4 Q. And, so, if there were policies that were in place
5 that made the Blackfeet Reservation less resilient to fire,
6 those policies would be based on the technical and scientific
7 information that the BIA either brought to bear or didn't
8 bring to bear in formulating the forest plan; isn't that
9 right?

10 A. I'm not sure I understand your question.

11 Q. So, is it your testimony in this case that there
12 were policies in the forest plan that made the Blackfeet
13 Forest less resilient to fire?

14 A. For example?

15 Q. For example, not harvesting or conducting fuel
16 treatments in reserve areas or stream buffer zones?

17 A. The BIA at the Blackfeet Agency were responsive to
18 the Blackfeet Tribe's wishes in protecting those values that
19 they considered high priority.

20 Q. As I understand your testimony in this case, you
21 believe that those policies -- reserve lands, stream buffer
22 zones, no harvesting, no hazard fuel reduction in those areas
23 -- made the Blackfeet Forest less resilient to fire. Isn't
24 that true?

25 A. It also addressed the multiple-use mandate that the

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1 BIA was operating under as well to protect those aesthetic
2 values and those things.

3 Q. Yeah, that's not quite my question, sir. My
4 question is is it your testimony in this case that the
5 prohibition against harvesting and fuel reduction projects in
6 reserve areas and stream buffer zones and the scenic byways
7 made the forest less resilient to fire.

8 A. In those particular stands, they are more -- it --
9 they're less resistant to fire --

10 Q. Okay.

11 A. -- in some of your younger stands that develop
12 following timber harvest, yes.

13 Q. Okay. And, so, you would agree with me that if a
14 forest manager engages in management actions like harvesting
15 or hazardous fuel reduction, then on the Blackfeet
16 Reservation, that can, in fact, serve to protect --
17 potentially protect the forest from wildland fire. Isn't
18 that right?

19 A. You're saying timber harvest? Is that what you're
20 referring to?

21 Q. That's one of the management actions that I'm
22 talking about.

23 A. Certainly, timber harvest helps to restore the
24 health of the forest and if other actions are implemented can
25 improve the health of the forest and increase the resistance

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1 to fire.

2 Q. Okay. So, a forest manager shouldn't wait until
3 the forest is damaged by a wildland fire like the Red Eagle
4 Fire in order to take actions to protect the forest, correct?

5 A. Well, you don't have the foresight to know when the
6 Red Eagle-type fire is going to occur, so you address the
7 threats that do exist -- the major threats that do exist.
8 And in the case of the Blackfeet Reservation, this was from
9 fires within the Reservation.

10 Q. Okay. Well, I understand that you're critical of
11 Mr. Schulte because he engaged in hindsight. Would you agree
12 with me, sir, that forest managers are required to engage in
13 foresight in trying to determine risks that may affect or may
14 impact the forest from wildland fire?

15 A. Yes. You do your analysis to determine where the
16 risk is, and they did that through the fire management
17 planning analysis.

18 Q. Okay. And, so, one of the things that you want to
19 do is you want to decide whether or not these reserve areas
20 or the stream buffer zone areas actually present a greater
21 risk of fire damaging the Blackfeet Forest because they are
22 not subjected to harvesting or fuels treatment. That's
23 something that a forest manager would want to think through,
24 correct?

25 A. You want to be able to recognize those risks, yeah.

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1 Q. And you would want to tell the beneficial owner,
2 the Tribe, about those risks when the decision was made and
3 put into a policy not to harvest or not to engage in
4 hazardous fuel reduction in those areas. Isn't that right?

5 A. I think you would need to advise them of the
6 consequences of their requirements.

7 Q. Okay. So, you've indicated the constraints, and
8 it's largely these constraints that we've been talking about
9 on the Blackfeet side were part of the reason that the Red
10 Eagle Fire -- strike that.

11 That these constraints made the forest less
12 resilient to fire. Sir, you -- and I think you alluded to it
13 in response to one of Mr. Bair's questions. You realized
14 that after the Red Eagle Fire the policies with regard to the
15 reserve areas and the stream buffer zones changed, correct?

16 A. I don't know that the policy changed for the
17 viewsheds, but it did change in the stream buffer zones.

18 Q. And as a result -- as a specific result of the Red
19 Eagle Fire, harvesting and hazard fuel reduction is now
20 permitted in stream buffer zones; isn't that right?

21 A. They've relaxed the restrictions on that based on
22 experience of having fires channeled through those buffer
23 zones before.

24 Q. Well, it was the experience of the Red Eagle Fire
25 channeling through those areas, isn't that right, that caused

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1 the change?

2 A. That's correct. And sometime I think you have to
3 experience it to recognize it.

4 Q. Okay. Well, those zones prior to the Red Eagle
5 Fire were not managed in terms of hazard fuel reduction,
6 correct?

7 A. That's correct.

8 Q. And forest managers knew at that time that not
9 managing the forest fuels could result in making the forest
10 more susceptible to a large wildland fire -- to being damaged
11 by a large wildland fire; isn't that right?

12 A. Fuel treatments in the fuel types that you have on
13 the Blackfeet Reservation cannot be protected from a fire
14 such as the Red Eagle Fire with the extreme wind events that
15 you had.

16 Q. Okay.

17 A. And if you're trying to treat it for low severity,
18 moderate severity, then you can have some impact.

19 Q. Okay. I'm just talking about -- it's my
20 understanding that part of the reason you are critical of Mr.
21 Schulte is that fire coming across -- in your opinion, fire
22 coming across the border is not a primary threat, and there
23 are these constraints, both in Glacier Park and on the
24 Reservation, with regard to actually treating fuels. And
25 we've talked about those, and I don't want to belabor it.

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1 Let's go to the other reasons that you think that
2 the fuel break -- Mr. Schulte's fuel break would not be
3 effective. My understanding is that because of the weather,
4 you believe that this fire could not have been suppressed,
5 the Red Eagle Fire, I mean. Is that right?

6 A. Until the wind subsided, no.

7 Q. Until the wind subsided. And that was sometime
8 after 2:00 a.m. on July 30th, correct?

9 A. That was the time that the records show that the
10 wind subsided, humidity increased, and the fire dropped to
11 the ground.

12 Q. Okay. And I think you testified that in order to
13 deal with a fire like the Red Eagle Fire with regard to
14 applying suppression forces, the fire would have to drop to
15 the ground, correct?

16 A. Yes. You couldn't put forces out in front of a
17 wind-driven crown fire.

18 Q. You certainly couldn't put forces out in front of
19 the Red Eagle Fire as it actually burned, true? We agree on
20 that.

21 A. That's true.

22 Q. Right. Okay. So, you're familiar with Dr.
23 Finney's modeling, correct?

24 A. Yes.

25 Q. And you understand that in the model that he did

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1 actually converting Fuel Model 10 forest to a Fuel Model 8
2 forest, the fire did drop to the ground, and the flame
3 lengths at that point were two feet. You're familiar with
4 that?

5 A. Under one of his earlier modeling efforts, yes.

6 Q. Okay. The modeling efforts that you were talking
7 about in responding to some of Mr. Bair's questions with the
8 20 to 60-foot flame lengths, those were models that Dr.
9 Finney ran that -- in which he did not treat the other cover
10 types, the other fuel types, that were in the treatment
11 areas, correct?

12 A. That was a result of modeling utilizing what was
13 realistic fuel models in that area.

14 Q. Are you a -- are you someone who performs FARSITE
15 modeling?

16 A. I've never done FARSITE modeling. I've used the
17 product.

18 Q. Okay. So, you understand that if some of the fuels
19 in a fuel treatment area are treated in FARSITE by converting
20 them to an FM -- from an FM 10 to an FM 8, but other fuels in
21 the treatment are not converted and are left untreated, those
22 fuel cover types that are untreated can act as corridors of
23 fire and spread the fire through the treatment; isn't that
24 true?

25 MR. BAIR: Objection, Your Honor. Excuse me. Mr.

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1 Montgomery has not been qualified as an expert in fire
2 modeling. And he's just testified that he doesn't have
3 expertise in using this program. There's a foundational
4 issue here.

5 THE COURT: Mr. Graybill?

6 MR. GRAYBILL: Let me rephrase the question and see
7 if we can do it that way.

8 THE COURT: All right.

9 BY MR. GRAYBILL:

10 Q. Do you -- you reviewed Dr. Finney's modeling,
11 correct?

12 A. I reviewed the results of his modeling.

13 Q. Okay. Did you read his report?

14 A. I read through portions of his report.

15 Q. He had two reports. Did you read the second report
16 that had the modeling in it?

17 A. Yes.

18 Q. Okay. And, so, here's my question. Based on your
19 reading of that report and your understanding after reading
20 that report, do you recognize that the cases, the modeling
21 that he did that resulted in 20 to 60-foot flame lengths,
22 were the models where he didn't treat all of the fuels?

23 A. I don't have an understanding of the process and
24 the procedures he used to model.

25 Q. Okay. If the flame lengths are dropped to two

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1 feet, then you can apply suppression forces on a fire. Isn't
2 that true?

3 A. That's generally the case, yes.

4 Q. Okay. And, in fact, you can -- if they're two
5 feet, you can apply human suppression forces, not just
6 equipment, correct?

7 A. Generally.

8 Q. By July 30th, isn't it true that crews and engines
9 and dozers and helicopters had all begun to arrive on the Red
10 Eagle Fire?

11 A. They had started to arrive, and they had a few
12 resources there.

13 Q. By the 30th, all of those suppression sources that
14 I just named had begun to arrive, correct?

15 A. What are you calling "all"?

16 Q. Well, just the crews, engines, dozers, helicopters
17 --

18 A. How many --

19 Q. I'm sorry, those had all begun to arrive by the
20 30th, correct?

21 A. Some had started to arrive, but I don't have the
22 numbers that you're talking about.

23 Q. Well, I didn't mention any numbers, sir. Why don't
24 we turn -- well, is it up? Why don't we go to your report.
25 It's Defendant's Exhibit 135-34. And --

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1 A. I'm sorry, what's that number?

2 Q. It is -- at the bottom, there's a Bates stamp, that
3 it should say 135-34. It's page 30 of your initial report.

4 A. Thank you.

5 Q. And do you see there where it says, "By July 30th,
6 crews, engines, dozers, helicopters, and fire overhead had
7 begun to arrive"?

8 A. Yes.

9 Q. And then it says, "the ICS-209 for July 30th."
10 What's an ICS?

11 A. That's a report that's produced that identifies the
12 situation on the fire in terms of various fire behavior
13 that's being experienced, as well the resources as they have
14 arrived.

15 Q. Okay. It goes on to say that "for July 30th ...
16 shows that 170 firefighting personnel, 13 engines, and two
17 helicopters had been assigned to the fire." Do you see that?

18 A. Yes.

19 Q. And, so, assuming, sir, that a big fire like the
20 Red Eagle Fire, and it's coming across the landscape, does,
21 in fact, drop when it hits this composition change, the fuels
22 composition change in a landscape-level treatment, and the
23 flame lengths are reduced to two feet, then suppression could
24 actually get on the fire and potentially control it. Isn't
25 that true?

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1 A. Potentially, but it takes time to assign -- to get
2 those resources assigned.

3 Q. Okay. Sir, you -- excuse me. You admit that the
4 BIA managers have always recognized the threat of fire
5 crossing from the Glacier National Park side onto the
6 Blackfeet Forest, correct?

7 A. I don't know firsthand, but I would assume that
8 they realize that's a possibility, along with all the other
9 threats to the Reservation.

10 Q. Okay.

11 (Brief pause.)

12 MR. GRAYBILL: Your Honor, that's all I have at
13 this point.

14 THE COURT: All right. Thank you, Mr. Graybill.

15 Do you have any redirect, Mr. Bair?

16 MR. BAIR: I do, Your Honor, briefly.

17 THE COURT: Everybody always says briefly.

18 MR. BAIR: This time, Your Honor, I believe I mean
19 it.

20 REDIRECT EXAMINATION

21 BY MR. BAIR:

22 Q. Mr. Montgomery, Mr. Graybill asked you earlier
23 whether wildland fire suppression is a large component of
24 your professional background. Is fire suppression a large
25 component of federal fire policy?

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1 A. I'm sorry, could you repeat your question?

2 Q. Is fire suppression a large component of federal
3 fire policy?

4 A. Yes.

5 Q. And is an understanding of fuel breaks relevant to
6 performing suppression? Is it important to understand how
7 fuel breaks work to perform suppression?

8 A. Absolutely.

9 Q. And is understanding suppression important to
10 understanding how fuel breaks work?

11 A. Yes.

12 Q. Earlier today, you testified about various
13 requirements in the 1997 forest management plan. Did the
14 Blackfeet Tribe's chairman sign that plan?

15 A. I believe they did.

16 Q. And does the plan reflect the Blackfeet Tribe's
17 stated wishes?

18 A. As I understand them.

19 Q. Typically, does BIA attempt to act in a way that
20 reflects tribes' wishes?

21 A. I think they do. There's tribal resolutions that
22 have been passed by the Tribe that identifies those wishes.

23 Q. And even aside from the Blackfeet Agency, does the
24 BIA as a whole attempt to act in a way that's consistent with
25 American Indian tribes' interests?

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1 A. I think so.

2 Q. And does doing that sometimes involve balancing
3 multiple priorities?

4 A. Yes.

5 Q. Is it sometimes reasonable for the BIA to
6 prioritize one value, such as scenic viewsheds, over other
7 values, such as fire resistance?

8 A. I think it would depend on the circumstances and
9 what the level of risk was by doing that and how strongly the
10 tribe may feel about their priorities.

11 Q. And to be clear, do you think the BIA Blackfeet
12 Agency did anything here knowingly increasing the risk of
13 fire?

14 A. No, I don't believe they would

15 Q. Let's talk about fuel treatments. Earlier today
16 during cross examination you testified about some fuel
17 treatments that survived the Red Eagle Fire.

18 A. Yes.

19 Q. I'd like to ask one question first. Were the
20 weather conditions necessarily the same when the fire reached
21 those fuel treatments as when the fire crossed the boundary?

22 A. There were some things that were occurring there,
23 and it's documented in the fire behavior analyst report
24 about the influence of the topography and how it affected
25 the winds. And while you can't absolutely determine that

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1 those -- the topography and the influence that had on the
2 winds and then splitting up the fire front resulted in
3 survival of those areas that we're talking about. I think
4 that, in my opinion, was probably a factor, and I know that
5 the fire behavior analyst report talks to that situation.

6 Q. So, is it possible that the weather is a major
7 factor in why some of those fuel treatments survived?

8 A. In my mind, it was.

9 Q. Did the fire burn through the area previously
10 burned by the 2002 Fox Creek Fire?

11 A. A portion of it.

12 Q. Okay. And that area had just burned a few years
13 earlier, hadn't it?

14 A. 2002.

15 Q. And did that create a sort of natural fuel
16 treatment?

17 A. Yes, to some degree, but there again, you had some
18 grass that had come in, and like Dr. Finney talked about,
19 that allowed some spread through there, as long as the winds
20 were pushing it. But then when the wind subsided, I believe
21 that's when the spread through the Fox Creek Fire began to
22 subside.

23 Q. Do you remember earlier today or perhaps yesterday
24 when Dr. Finney testified about a photo in Dr. Agee's paper
25 showing a fuel break that survived even as the fire burned

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1 around it?

2 A. Yes, I saw that.

3 Q. Is whether a fuel treatment survives the measure of
4 its success?

5 A. I know you have to look at what allowed it to
6 survive. And that's what I was talking about just a moment
7 ago is there's no way of really knowing.

8 Q. So, does the fact that a small number of fuel
9 treatments within the Reservation survived the Red Eagle Fire
10 show in any way that a fuel treatment could have stopped the
11 Red Eagle Fire from crossing the boundary?

12 A. No.

13 Q. You've testified that you don't think this fire
14 could have been suppressed, even with a fuel break in place.
15 Before you saw Dr. Finney's FARSITE modeling, did you have
16 opinions about whether Mr. Schulte's fuel break would have
17 been effective?

18 A. Yes, I did.

19 Q. Did you develop those opinions by applying your
20 decades of expertise to the facts of this case?

21 A. Yes, I did.

22 Q. Does Dr. Finney's modeling match your expectations
23 and predictions for how this fuel break would perform if it
24 were somehow implemented?

25 A. Yes, it helped me to understand why it would not

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1 have been effective.

2 Q. But is Dr. Finney's modeling the sole basis for
3 your opinion that this fuel break would be ineffective?

4 A. No.

5 Q. Let's finish up by asking just a few questions
6 about the Reservation's fire history. You testified during
7 your cross examination in response to Mr. Graybill's question
8 that the vast majority of fires within the Reservation are
9 extinguished at less than ten acres. Is that true?

10 A. Ninety percent of them, I believe, is the record.

11 Q. So, that leaves approximately 10 percent that grow
12 larger than ten acres.

13 A. Yeah, but that doesn't mean they're all large
14 fires.

15 Q. Do small fires sometimes become big fires?

16 A. Every fire starts small.

17 Q. And historically, did some of those small fires
18 inside the Reservation become big fires?

19 A. Yes.

20 Q. Particularly when under the influence of strong
21 winds?

22 A. Yes.

23 Q. Can you ever predict those wind conditions in
24 advance, for instance, when designing a fuel treatment?

25 A. Not when you're designing fuel treatments.

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1 Q. Was the Fox Creek Fire one of those small fires
2 that became a big fire?

3 A. Yes.

4 Q. And could fuel treatments inside the Reservation
5 help keep small fires small?

6 A. They can if you're dealing with low severity or
7 moderate severity perhaps fire conditions.

8 Q. Was there a risk of fires crossing the boundary
9 from the Park to the Reservation?

10 A. I'm sorry, would you repeat it?

11 Q. Was there a risk of fires, particularly under the
12 influence of high winds, crossing the boundary from the Park
13 to the Reservation?

14 A. There's always that risk.

15 Q. In your view, was that the primary fire risk faced
16 by the Blackfeet Tribal Forest?

17 A. No.

18 Q. Exercising foresight and good judgment, could the
19 BIA have predicted when a fire like the Red Eagle Fire was
20 going to occur?

21 A. No.

22 Q. Do you believe that the BIA acted reasonably in
23 light of the Reservation's fire history and the fire risk the
24 Reservation faced?

25 A. I believe they did.

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1 MR. BAIR: No more questions.

2 THE COURT: Okay. Anything further, Mr. Graybill?

3 MR. GRAYBILL: It's going to take a long time.

4 THE COURT: Oh, don't say that.

5 MR. GRAYBILL: I'm just setting up your
6 expectations, Your Honor.

7 THE COURT: That's impossible.

8 MR. GRAYBILL: I'm going to try to be very brief,
9 Your Honor.

10 RE CROSS EXAMINATION

11 BY MR. GRAYBILL:

12 Q. Mr. Montgomery, you just stated in response to a
13 question from Mr. Bair that the Blackfeet forest manager, BIA
14 forest manager, couldn't predict when a fire might come
15 across the border from Glacier Park, correct?

16 A. That's correct.

17 Q. But certainly, sir, you would agree that fire
18 managers for the -- and forest managers for the Blackfeet
19 Reservation could predict that a fire could come across the
20 border onto the Reservation, correct?

21 A. I don't know if you can predict, but you can -- any
22 time that you have an area like that with just a boundary,
23 there's always that possibility.

24 Q. Okay. And certainly -- well, certainly if there's
25 a possibility that these unmanaged -- at least not managed

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1 for fuel reduction treatments -- forests on the Park side are
2 continuing to generate fuels. It is certainly a possibility
3 and therefore predictable that fire can come across; isn't
4 that right? A forest manager would know that, right?

5 A. Well, I think that's what I said a while ago.

6 Q. Okay.

7 A. It's always possible.

8 Q. In addition to that, a Blackfeet -- a BIA Blackfeet
9 forest manager could certainly predict that there would be
10 high winds in the area of the Blackfeet Forest. That's a
11 feature of that forest, isn't it?

12 A. I don't think the right term is "predict." You
13 know that that's common to that area, but you cannot
14 necessarily predict it.

15 Q. Okay. Well, you can't predict exactly what day the
16 winds are going to be blowing hard, but you certainly can
17 predict that there are going to be winds and that those winds
18 can affect fire behavior --

19 A. I can.

20 Q. -- if you're a forest manager, correct?

21 A. But you don't know that a fire is going to occur
22 coincident with those winds.

23 Q. Okay. I won't belabor that point.

24 You stated in response to some questions that Mr.
25 Bair asked that when the Red Eagle Fire made its big run on

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1 July 29th and into the 30th, there weren't any natural fuel
2 breaks, but then there was -- the fire did hit a fuel
3 composition change and drop down. Do you remember that?

4 A. I think it was coincident with the -- some sighting
5 of the winds and the increased relative humidity, too.

6 Q. Well, let's quickly bring up the Final Fire
7 Narrative, Plaintiff's Exhibit 57. And this is going to be
8 57-26. And you may have that in front of you there, sir, if
9 you want to look it up.

10 A. What's that number again, please?

11 Q. Yeah, it's Plaintiff's Exhibit 57-26. Not 157, 57.
12 Plaintiff's 57.

13 A. What page?

14 Q. Twenty-six. It's down at the bottom, you'll see
15 the Bates stamp 57-26.

16 A. Yes, I'm there.

17 Q. And do you see there -- this is your report,
18 correct? Or excuse me, this is the Final Fire Narrative,
19 correct?

20 A. This was an exhibit to my report.

21 Q. Right, and it's an exhibit to your report. And it
22 says that "the fire stopped where it hit the fuel composition
23 change, on the north end of the fire, burned into the old Fox
24 Creek Fire and old logging units." Do you see that?

25 A. Which paragraph is that in?

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1 Q. It's the last paragraph. It's the beginning of the
2 last paragraph on page 57-26.

3 A. Okay, I found it.

4 Q. Okay. And it's a paragraph describing what we've
5 just talked about, when the fire comes into contact with this
6 fuel composition change, correct?

7 A. That's what it states.

8 Q. And the fire narrative, the person who is writing
9 this fire narrative, who was in charge of fighting the fire,
10 it doesn't say anything about winds slowing the fire down at
11 this point, correct?

12 A. It says it somewhere else in this narrative,
13 though.

14 Q. Well, do you want to find -- do you know where?

15 Well, let me ask this question, sir, before you
16 start looking for that. There isn't anything in this
17 narrative that suggests that when the fire hit this fuel
18 composition changed and dropped in intensity that that had
19 anything to do with the winds dropping, that that was
20 coincident with the winds dropping. That's true, isn't it?

21 A. On these pages here, I don't see that, but there's
22 another fire behavior narrative for the fire behavior analyst
23 that was with the Type 2 team that documented that.

24 Q. Right. Well, he documented or she documented that
25 the winds died down at -- after 2:00 p.m. and that caused the

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1 fire to reduce in intensity. But that comment had nothing to
2 do with these composition changes, did it?

3 A. I'd have to look at that, but as I recall I thought
4 it did.

5 Q. Okay. Well, in any event, this description has
6 nothing to do with the winds, only the compositions changed,
7 correct, sir?

8 A. This paragraph doesn't say anything about winds,
9 but --

10 Q. So, if we take a look at Exhibit -- Plaintiff's
11 Exhibit 55, the fire progression map, we see that by 2200
12 hours -- this is the red area -- by 2200 hours on July 29th,
13 the fire -- and that's 10:00 -- or 10:00 p.m. on the 29th,
14 the fire had spread into these composition areas; isn't that
15 right?

16 A. It had started entering some of them.

17 Q. Okay. And that's before 2:00 a.m. on the 30th,
18 before the winds died down, isn't that right?

19 A. 2200 would have been -- and that was on the?

20 Q. 29th. The winds died down on July 30th.

21 A. Yes.

22 Q. Okay. And, so, the composition changes are having
23 an effect, even before the winds die down, correct?

24 A. Well, I can't say from what I'm looking at here.

25 Q. Okay. Last question. Does the BIA subordinate

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1 sound forest management to a tribe's wishes about how its
2 forests should look?

3 A. I don't understand your question.

4 Q. Does the BIA subordinate sound forest management
5 policies to a tribe's wishes about what should be done with
6 its forest, in your experience?

7 A. In my experience, they would try to work things out
8 to where it was to their benefit to still achieve these
9 results.

10 Q. Sir, I understand there's coordination with the
11 tribe. My question is different than that. In your
12 experience, does the BIA actually subordinate sound forest
13 management policies and elevate over those policies tribal
14 wishes about what should be done with a forest?

15 A. I don't think they subordinate it, no.

16 MR. GRAYBILL: All right. That's all I have

17 THE COURT: All right. Mr. Montgomery, thank you
18 very much for your testimony. You may step down.

19 All right, what's next?

20 MS. PIROPATO: Dr. Wendy Wente, Your Honor.

21 THE COURT: Good afternoon.

22 THE WITNESS: Good afternoon.

23 Whereupon,

24 WENDY WENTE, Ph.D.

25 called as a witness, having been first duly sworn, was

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1 examined and testified as follows:

2 MS. PIROPATO: Your Honor, may we approach? Ms.
3 Megan Moore is going to be bringing up the exhibit copies of
4 Dr. Wente's report, as well as I have hard copies for
5 convenience.

6 THE COURT: Great. That's fine.

7 THE WITNESS: Thank you.

8 MS. PIROPATO: And let me clarify what's before
9 Your Honor. I have before Your Honor a courtesy copy of the
10 slide presentation prepared by Dr. Wente. I also have a copy
11 of the presentation with her notes that she might be
12 referring to for both the Court and counsel to see.

13 THE COURT: All right, very well.

14 MS. PIROPATO: Okay, great. May we proceed?

15 THE COURT: Yes.

16 DIRECT EXAMINATION

17 BY MS. PIROPATO:

18 Q. Please state your name for the record.

19 A. My name is Wendy Heiser Wente.

20 Q. And I have in front of you Defendant Exhibits
21 Number 139 and 143. Are these the expert reports you
22 submitted in this matter?

23 A. Yes, they are.

24 Q. Okay. So, we'll get to some of your background
25 right now. Where do you work?

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1 A. I work for a natural resources consulting firm
2 called Mason, Bruce & Girard.

3 Q. And what position do you presently hold?

4 A. I'm a senior ecologist there.

5 Q. Is there a subject matter that you specialize in?

6 A. I work in wildlife biology.

7 Q. And tell us about your educational background.

8 A. Yes. I went to undergraduate at Miami University
9 of Ohio, and there I received a bachelor of science in
10 zoology. And from there, I continued to graduate school at
11 Indiana University, and I earned a Ph.D. in ecology,
12 evolution, and animal behavior.

13 THE COURT: I think I'll have to disqualify myself
14 because my son went to Miami Ohio. Just kidding.

15 THE WITNESS: Go Redskins.

16 MS. PIROPATO: We'll put all football allegiances
17 aside for the next few days.

18 BY MS. PIROPATO:

19 Q. Can you outline any additional graduate work you
20 did?

21 A. Let's see. So, in my graduate program, working on
22 my Ph.D., I worked on some species of amphibians, and I was
23 working on -- I'm so nervous. I was working on microhabitat
24 choice and the evolution of this color polymorphism, which is
25 a set of different colorations in the single species of

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1 frogs. So, it was an evolutionary question, and it was on a
2 species that is in the west.

3 THE COURT: Do you have some water there?

4 THE WITNESS: I do.

5 THE COURT: It sometimes helps.

6 THE WITNESS: Thank you.

7 MS. PIROPATO: Thank you, Your Honor.

8 THE WITNESS: So, that was the subject of my
9 dissertation.

10 BY MS. PIROPATO:

11 Q. And tell us about your employment since you
12 received your Ph.D.

13 A. Okay. After I received my Ph.D., I took a position
14 with the U.S. Geological Survey out of Corvallis at the
15 Forest and Rangeland Ecosystem Science Center. And there I
16 studied amphibian decline in Oregon and Nevada. I was
17 looking at habitat assessments of a variety of species out in
18 that region and just documenting decline of a number of
19 species.

20 Q. And, again, can you describe the work you do
21 currently?

22 A. So, at Mason, Bruce & Girard, I am a wildlife
23 biologist and a senior ecologist, and my work is -- it spans
24 quite a lot of different types of work, but primarily I work
25 on compliance with Endangered Species Act permitting. So,

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1 going through and analyzing impacts of a proposed project,
2 both public and private, on listed species. That's a big
3 piece of my work.

4 Also, on just looking at the impacts of proposed
5 projects on a suite of wildlife species and how those impacts
6 might be mitigated. So, compliance with county and local
7 zoning codes and laws.

8 Q. And do you do any habitat assessment work?

9 A. Yes. Habitat assessment is a part of that work, so
10 oftentimes I'll go out and assess the habitat in the area of
11 a development or of a proposed project.

12 Q. Do you have any professional certifications or
13 involvement with professional societies?

14 A. Sure. I sit on the board of the Oregon Chapter of
15 the Wildlife Society, and I'm also a certified senior
16 ecologist with the Ecological Society of America.

17 Q. So, let's talk a little bit about your publications
18 and research. Have you published any work related to habitat
19 assessment?

20 A. Yes. Some of my publications that were -- when I
21 was working for the U.S. Geological Survey involved habitat
22 assessment as a part of the research that I was doing, out
23 monitoring amphibian species in the environment.

24 Q. And have you conducted any research related to
25 habitat assessment?

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1 A. So, research in the context of a project, so I have
2 completed research on habitat assessment. That's a component
3 of the work when I'm out on a project assessing the impacts
4 of a proposed project on a suite of species.

5 Q. So, Dr. Wente, have you testified in court before?

6 A. No.

7 Q. Okay. Have you served as an expert in litigation
8 before?

9 A. I was an expert witness on one case.

10 Q. And can you tell us briefly about that case?

11 A. That was the Moonlight Fire case. It was the
12 United States of America vs. SPI, and I served as an expert
13 witness as a wildlife biologist for SPI.

14 Q. And can you briefly kind of describe the kind of
15 work you did for SPI?

16 A. I did a wildlife habitat assessment, essentially
17 similar to this, for the area that was involved in that fire.

18 Q. Okay. So, without getting into any specifics of
19 your opinion, are you offering opinions on habitats and
20 wildlife observed in and around the area burned by the Red
21 Eagle Fire in this case?

22 A. Yes.

23 Q. Okay. So, generally speaking, what methodologies
24 do biologists and ecologists employ for habitat and wildlife
25 assessment?

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1 A. Yeah, so, generally, we go out and we look at the
2 environmental components that are in the area of interest.
3 We're looking at components of the environment that are
4 important for a suite of wildlife species. And, typically,
5 that involves vegetation, but there are also other abiotic
6 components like the topography of the land and elevation, a
7 number of other considerations. But essentially we're
8 considering that when we're assessing the habitat.

9 Q. So, what does habitat assessment tell a biologist?

10 A. It tells me a lot about how species might be using
11 a particular landscape.

12 Q. Okay. And how, if at all, does your expertise in
13 biology and ecology enable you to evaluate the habitat in a
14 particular area?

15 A. Yeah, so, it gives me the -- I have observational
16 experience and a lot of background in the types of habitat
17 elements that are important to different wildlife species. I
18 kind of know what to look for when I'm out there. I also
19 know about the background information that I might
20 investigate.

21 MS. PIROPATO: Your Honor, we'd like to offer Dr.
22 Wendy Wente as an expert in biology and ecology.

23 THE COURT: All right. Any voir dire?

24 MR. GRAYBILL: Your Honor, this witness also issued
25 a report responding to Dr. Duffield's HEA analysis. I think

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1 that that report basically contains opinions on his economic
2 analysis and would require an economics background, the kind
3 of background that this witness does not have. So, to the
4 extent that there are going to be questions regarding her
5 rebuttal report, I would voir dire and try to get into her
6 economics background.

7 THE COURT: Are we going to get into economics with
8 this witness?

9 MS. PIROPATO: To clarify, Your Honor, we are not
10 going to be discussing economics in any way, shape, or form.
11 However, Dr. Wenthe will be offering rebuttal testimony to Dr.
12 Duffield on a very narrow point, which is to say she's going
13 to comment on the aspects of his analysis that address
14 biology and ecology, not insofar as those are economic
15 opinions, but insofar as they have implications that bear on
16 biology and ecology.

17 THE COURT: Having heard that, do you want to
18 conduct any voir dire?

19 MR. GRAYBILL: It will go to the weight, Your
20 Honor, so --

21 THE COURT: I'm sorry?

22 MR. GRAYBILL: It will go to the weight, then, I
23 guess is what we'll do. And I won't object for the purposes
24 of tendering this witness as an expert biologist and?

25 MS. PIROPATO: Ecologist.

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1 MR. GRAYBILL: Ecologist. I don't have any
2 objection in that regard, Your Honor.

3 THE COURT: Well, if you hear a question that you
4 think is out of bounds, well, you can let me know.

5 MR. GRAYBILL: I will. Thank you, Your Honor.

6 THE COURT: Very well. With that, then, I will
7 accept Dr. Wente as an expert in ecology and biology.

8 MS. PIROPATO: Thank you, Your Honor.

9 BY MS. PIROPATO:

10 Q. So, let us proceed.

11 So, Dr. Wente, what were you asked to do in this
12 case?

13 A. I was asked to go out to the vicinity of the Red
14 Eagle Fire and finish a wildlife habitat assessment.

15 Q. So, broadly speaking, we're going to start with the
16 big picture first. What are the bases for your opinion as
17 expressed in your expert report, which is Defendant's Exhibit
18 Number 139?

19 A. Yeah, so, essentially, my report is based on the
20 observations that I made while out on a field visit to the
21 Red Eagle Fire, and it's based on background information that
22 I reviewed prior to making my site visit.

23 Q. And can you give us an example of the kind of
24 background information you considered, Dr. Wente?

25 A. Yeah, so, I looked at aerial photographs. You can

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1 see one example here on the left. I looked at topography. I
2 looked at the burn perimeter that was available, and I
3 reviewed species data for the area.

4 Q. So, you just stated that you did a field
5 investigation in this case. When did you do that?

6 A. I did that in July of 2015.

7 Q. Did you conduct that investigation with anyone
8 else?

9 A. Yes. I took a botanist with me, Daniel Covington.

10 Q. And what is your relationship with Mr. Covington?

11 A. Mr. Covington works with me at Mason, Bruce &
12 Girard, and he is a botanist that has experience in Montana.
13 He actually went to school here in Missoula, so he's very
14 familiar with the vegetation in this area.

15 Q. So, why would you have a botanist accompanying you
16 on your field investigation?

17 A. Yeah, typically I take a botanist with me that's
18 familiar with the plant species in the area because they can
19 identify the suite of species that I am observing in the
20 field.

21 Q. And did the botanist you took on this field
22 investigation have any experience in Montana?

23 A. Yes.

24 Q. And what was that experience?

25 A. Well, he was a botanist that studied here in

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1 school, and so he had field experience in this area.

2 Q. Okay. And, again, and just looking at the big
3 picture, what was the purpose of your field investigation?

4 A. Big picture, it was to go out and investigate
5 whether or not I saw evidence of wildlife using the burned
6 area.

7 Q. Okay. So, let's take a look at your first slide,
8 which is up on the screen right now. Where is this image
9 from?

10 A. So, the image is from my report.

11 Q. And what does this image depict?

12 A. This is a map of the Red Eagle Fire's perimeter.

13 Q. Okay.

14 A. And my project study area.

15 Q. And what does the blue line on this map signify?

16 A. The blue line is the project study area.

17 Q. So, how did you select the boundaries for the
18 project study area?

19 A. Yeah, so, I wanted to incorporate the burned area,
20 which is the red outline there, the fire perimeter. And then
21 also be able to pull in some areas that were outside of the
22 perimeter but adjacent to it, just to have an idea of the
23 types of habitat that I might run into there.

24 Q. Okay. And just to specify, to clarify your -- the
25 statement you just made, why would you want to see areas

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1 outside of the Red Eagle Fire burn perimeter?

2 A. Because they also are part of the ecosystems that
3 are involved in this general area. So, species aren't
4 necessarily going to pay attention to the burn perimeter
5 itself. So, I wanted to have an understanding of what else
6 is right near there.

7 Q. And what does the red line on this map signify?

8 A. That's the Red Eagle Fire's burn perimeter.

9 Q. And how did you determine where the Red Eagle Fire
10 burn perimeter was?

11 A. That was provided to me by Mr. Nelstead from the
12 Department of Justice.

13 Q. Okay. And what does the yellow line on this map
14 signify?

15 A. That's the Fox Creek Fire burn perimeter.

16 Q. And, again, for the clarity of the record, how did
17 you determine where the burn perimeter was for the Fox Creek
18 Fire?

19 A. Yeah, I obtained the spatial data from Kevin
20 Nelstead.

21 Q. Okay. And what does the green dotted line on this
22 map signify?

23 A. That is the Blackfeet Tribal Land boundary.

24 Q. And do the dots on this map signify? So, here,
25 here we go, there are some of them.

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1 A. Yeah, those are the locations of my observation
2 points. These are places where I stopped to collect data.

3 Q. And what do the white dots on the map signify, and
4 let me see -- there's one.

5 A. Yeah, so, the white dots are in unburned areas.

6 Q. And what do the yellow dots signify?

7 A. The yellow dots signify areas that are burned by
8 the Red Eagle Fire.

9 Q. Okay. Let's move on then.
10 Where is this image on the slide from?

11 A. Yeah, that -- that image is also from my report.

12 Q. Okay. And can you walk us through the methodology
13 you used in forming your conclusions for your report?

14 A. Sure. So, essentially, there were three steps to
15 my habitat assessment, and the first was done essentially
16 desktop before I went out to the field. So, in order to
17 determine a project study area, like I said before, I
18 reviewed background information, but I also looked at land
19 cover type data that were available, and this is publicly
20 available. This is the Montana National Heritage Program's
21 land cover type data that you see on this map, which gives
22 you an idea of vegetation cover types that were on the land
23 prior to the burn. So, this was prior to 2006 where this
24 particular map comes from.

25 I selected observations points that were based on

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1 kind of a spatial distribution. I just wanted to have points
2 that were throughout the project study area and that took
3 into account things like elevation, the aspect, habitat type
4 and structure, what I might expect to see out there, and then
5 what I was seeing as I was out there. So, I also set
6 observation points as I was moving around in the burn
7 perimeter. And I also considered management regimes.

8 So, essentially, the first step is to look at the
9 data ahead of time. The second step was to go out and do the
10 field observations. And then the third step is to synthesize
11 the data that I collected while out in the field.

12 Q. And for us nonbiologists, what is a Montana land
13 cover type?

14 A. Yeah, so, land cover type is essentially a
15 vegetation community. It's a way to describe the species
16 that would be expected to be in that area based on like tree
17 species, shrubs, and then herbaceous or forb species and
18 grasses, so the occurrence in the vegetation community that I
19 would expect to see.

20 Q. And why are land cover types important?

21 A. So, land cover types give us an idea of what the
22 resources are that are there for wildlife. Essentially,
23 wildlife rely on different cover types, and so by
24 understanding the vegetation communities that are present,
25 that gives me a lot of information on what wildlife species

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1 might be using it.

2 Q. So, let's just clarify what you did. Did you
3 conduct a habitat assessment based on a statistically derived
4 sampling approach?

5 A. No.

6 Q. And did you conduct an exhaustive study of the
7 study area?

8 A. No.

9 Q. And can you describe the kinds of conclusions you
10 drew from your report based on your field investigation?

11 A. Yeah, so, I based my conclusions off of the
12 observations that I actually made while in the field. So,
13 it's my individual observations, and it's general trends that
14 I saw based on those observations and based on my
15 understanding of what habitat elements are important to
16 species of wildlife.

17 Q. Okay, we can move on.

18 So, where is this image from?

19 A. That's from my report, and it's from the
20 photographs that I delivered with my report.

21 Q. And what does this slide show?

22 A. Yeah, so this shows an example of an observation
23 point. So, essentially the red flag there or orange flag
24 kind of marks the center of what was a circular plot. I
25 collected a circular plot at each observation point. And for

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1 that, I collected physical attribute data. I took
2 photographs on the cardinal directions for each of these
3 plots so that I would have something to refer to. I also
4 collected information on dominant vegetation species. That's
5 where Daniel came in and was helping.

6 Snags and downed wood I collected regarding the
7 occurrence of that, regarding the occurrence of live trees.
8 And then also any wildlife observations and sign that I made.

9 Q. And can you give us an example of wildlife
10 observations or signs?

11 A. Sure, like tracks or scat.

12 Q. Okay. And where is this image from?

13 A. The photographs and the image are from my report
14 and from the photographs that I delivered with the report.

15 Q. And just for the clarity of the record, were the
16 photographs you delivered with your report, are they included
17 in Defendant's Exhibit 182?

18 A. Is that the photo --

19 Q. Yeah, your photo diary.

20 A. Yes.

21 Q. Okay, great. And what does this slide show?

22 A. So, this slide shows essentially that I was looking
23 at the Montana National Heritage Program data, the land cover
24 mapping, ahead of when I went out there, but of course I was
25 going out there post-burn. So, essentially, I was looking at

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1 how the information I was collecting in the field actually
2 corroborated the Montana National Heritage Program's land
3 cover type.

4 Q. And just to clarify one point, is the Montana
5 Heritage data that you just referred to, is that public data?

6 A. Yes.

7 Q. Okay. So, how many observation points did you
8 observe?

9 A. So, I collected 25 observation points.

10 Q. Were these observation points in the unburned area
11 of the project study area?

12 A. There were some in the unburned area, and there
13 were seven of those.

14 Q. And could you provide us with an overview of your
15 results?

16 A. Yeah. So, in the unburned area, on those points, I
17 observed four different vegetation communities. I saw aspen
18 and mixed conifer forest at two of the points, the
19 parenthetical are the number of observation points where I
20 saw those. Rocky Mountain subalpine dry-mesic spruce-fir
21 forest and woodland at three. Rocky Mountain subalpine mesic
22 spruce-fir forest and woodland at one. And harvested forest-
23 tree regeneration at one observation point.

24 Q. So, Dr. Wente, you're a biologist. Why are you
25 gathering information about these different community types?

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1 A. Yeah, so, the vegetation community, again, gives me
2 an idea of how it might support the wildlife species that are
3 out on the site.

4 Q. So, you're saying there's a correlation between the
5 vegetation that you see and the wildlife you expect to see;
6 is that right?

7 A. Yeah, so, the community type is a land cover type,
8 but that's also indicative of the ecosystem type.

9 Q. And were there observation points in the burned
10 area of the project study area?

11 A. Yes. I collected 18 burned observation points.

12 Q. And can you provide us an overview of your results?

13 A. Yes. So, there was one observation point that was
14 Rocky Mountain subalpine-upper montane grassland. And then I
15 saw early seral stages of the following four, which were
16 aspen and mixed conifer forest, the Rocky Mountain subalpine
17 dry-mesic spruce-fir forest and woodland -- I know that's a
18 mouthful -- Rocky Mountain dry-mesic montane mixed conifer
19 forest, and then harvested forest-tree regeneration.

20 And by early seral stages, I mean that that's an
21 early developmental stage of that particular type of
22 community. So, when a disturbance happens, the community
23 starts to grow back. And, so, you can see indicators of the
24 developing community early on, and that's what I'm meaning by
25 early seral stages.

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1 Q. So, kind of what are the characteristics of an
2 early seral-stage forest or area?

3 A. Yeah, so you can have grassland species, grasses
4 that are coming in, but then you'll also have seedlings of
5 the tree species that are regenerating in that general area.

6 Q. Okay. And where are these images on the slide
7 from?

8 A. Those are from my report and the associated photos.

9 Q. And can you walk us through what this slide
10 depicts?

11 A. Yes, this is a couple of pictures of the Rocky
12 Mountain subalpine dry-mesic spruce-fir forest and woodland.
13 On the left is an unburned example, and on the right is a
14 burned example.

15 Q. So, we're going to give my last name a little run
16 for its money here. What is a Rocky Mountain subalpine dry-
17 mesic spruce-fir forest and woodlands?

18 A. So, this is -- yeah, this is a community type
19 that's associated with well-drained soils, grasses, shrubs
20 and forbs that are tolerant of these warmer, kind of
21 relatively dry conditions. That's why it's dry-mesic. This
22 cover type primarily experiences disturbances that are from
23 insect outbreaks, blow-down of trees, and also fire.

24 THE COURT: Ms. Piropato, is this a good place to
25 stop for today?

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1 MS. PIROPATO: This would be a great place to stop,
2 Your Honor. Thank you.

3 THE COURT: Okay. Before we all leave today, I'd
4 like to get a sense of how we're doing on schedule,
5 specifically whether you all think there's a possibility of
6 finishing tomorrow.

7 MR. BAIR: Ms. Piropato is responsible for our
8 remaining witnesses, so I'd defer to her.

9 MS. PIROPATO: Oh, no, you're looking at me. I'm
10 very nervous, Your Honor. I think we could finish the
11 remaining witnesses, which includes Dr. Wente, Dr. Zhang, Dr.
12 Robin Cantor, and Dr. Kronrad within the time frames allotted
13 by this Court by tomorrow. It is possible they could migrate
14 onto Thursday. Some of that depends on the scope and the
15 extent of cross examination.

16 THE COURT: Right. At this point, does the
17 Plaintiff anticipate a rebuttal case?

18 MR. GRAYBILL: We don't anticipate one at this
19 point, but that may change.

20 THE COURT: Sure.

21 MR. GRAYBILL: I don't think that we'll be done
22 tomorrow based on what I think the cross examination will be
23 of some of the witnesses.

24 THE COURT: So, it sounds like if you were me you
25 probably would leave your present travel plans in place.

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1 MS. PIROPATO: That sounds right, Your Honor.

2 THE COURT: Yeah, okay. I'll see you all at 9:30
3 tomorrow morning.

4 (Court adjourned at 5:00 p.m.)

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1 CERTIFICATE OF TRANSCRIBER

2

3 I, Sara J. Vance, court-approved transcriber,
4 certify that the foregoing is a correct transcript from the
5 official electronic sound recording of the proceedings in the
6 above-titled matter.

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10 DATE: 9/16/16

11 SARA J. VANCE, CERT

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1	ADMITTED EXHIBITS		
2			
3	PX	PAGE	DESCRIPTION
4	140	1275	2006 Optimazation Procedure
5			
6	DX	PAGE	DESCRIPTION
7	187	1334	USDA Fire, Fuel Treatments, and
8			Ecological Restoration: Conference
9			Proceedings. April 16-18, 2002, Fort
10			Collins, CO
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